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HAMILTON AIRPORT:
AIR CARGO AND COURIER
POTENTIAL STUDY,
April 1989



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HAMILTON AIRPORT/ AIR CARGO AND COURIER POTENTIAL STUDY



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GOVERNMENT DOCUMENTS

Aerocan Aviation Specialists Inc.

April 1989



HAMILTON AIRPORT

AIR CARGO AND COURIER POTENTIAL STUDY

APRIL 1989

PREPARED BY: AEROCAN AVIATION SPECIALISTS INC.

PREPARED FOR: REGIONAL PLANNING BRANCH
HAMILTON-WENTWORTH
PLANNING AND DEVELOPMENT DEPARTMENT

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EXECUTIVE SUMMARY

Air Cargo and air courier activity represents a segment of the overall air transport industry that offers potential activity for Hamilton Airport. The Regional Municipality of Hamilton-Wentworth is preparing a comprehensive plan for Hamilton Airport and the adjacent Airport Industrial - Business Park and has decided to study the potential for increased air cargo and air courier activity as a component to the overall plan.

The study has three main objectives:

1. To provide information on overall growth trends for air cargo and courier services;
2. To estimate the potential share of these types of services that might be attracted to Hamilton Airport; and
3. To identify additional facilities or improvements that are required to make Hamilton Airport attractive to those services.

Growth trends were reviewed and although hampered by a distinct lack of good statistical information, a number of useful directions were established. A large proportion (almost one half) of all air cargo business in Canada is generated within

easy market reach of Hamilton Airport. Strong growth is indicated for the air cargo business in Ontario and the air courier business will grow even faster (2 or 3 times faster). With this rapid expansion of the air cargo and air courier businesses, underpinned by a strong growth in industry and business in the Hamilton market area, and a lack of adequate airport capacity to handle this traffic, there is a good opportunity for Hamilton Airport to respond to the challenge.

The study involved an extensive interview program of current and potential users of Hamilton Airport to establish their needs and their views on potential improvements to Hamilton Airport. Three very basic findings came out:

1. The ability to operate into and out of Hamilton Airport 24 hour/day with few delays provides Hamilton Airport with a positive advantage over other airports.
2. The distinct lack of any modern air cargo facility is the most obvious deficiency that discourages greater use of Hamilton Airport for air cargo and air courier activity.
3. The length of the longest runway at 8000 ft effectively restricts Hamilton Airport to the Domestic and Transborder sectors of the market. The International sector, which

requires a longer runway for non-stop long haul service cannot be served properly by the current runway length.

The study used three different scenarios to review the potential of Hamilton Airport. The first is a status quo situation which does not involve any major changes to facilities but still requires actions by Hamilton-Wentworth to ensure the continuance of the existing capabilities of the Airport and the ability to attract new air services. The second scenario provides for a more active approach to the Domestic and Transborder air cargo and air courier markets by recommending the construction of a new air cargo terminal and improving the road access to the Airport. The third scenario looks to the full air cargo and air courier market by recommending a longer runway and improved airside and groundside facilities. These changes in the final scenario would put Hamilton in a fully competitive position with other major air cargo and air courier airports such as Pearson International Airport, Montreal - Mirabel and Detroit.

It is important to note that the changes are not incremental but are related to thresholds of activity and are therefore difficult to tie to forecasts of growth in the air cargo business. For instance the International market sector cannot be adequately addressed until a longer runway is available.

Although the study recommends the changes to address the third scenario, positive improvements to the capabilities of the Hamilton Airport will be realized by implementing even the most basic recommendations of Scenario 1.

CHAPTER 1 - INTRODUCTION

1.1 INTRODUCTION

The Regional Municipality of Hamilton-Wentworth is preparing a comprehensive plan for Hamilton Airport and the adjacent Airport Industrial-Business Park. This study on air cargo and courier potential forms one component of the overall airport plan and has three main objectives:

1. To provide information on overall growth trends for air cargo and courier services;
2. To estimate the potential share of these types of services that might be attracted to Hamilton Airport; and;
3. To identify additional facilities or improvements that are required to make Hamilton Airport attractive to those services.

1.2 BACKGROUND

The air cargo and courier segment of the air transport industry is growing rapidly and changing just as quickly. The growth and change is an industry wide phenomenon occurring both overseas and in North America. Annual growth rates up to 50 or 60% have been reported by individual companies although government statistics have been somewhat more conservative. Change and restructuring

in the industry, fueled by deregulation and increased competition have made it very difficult to establish a baseline from which future projections can be made. To illustrate this dynamism in the air cargo and courier business the following list sets out significant industry adjustments and realignments that have occurred in the two and one half month time period encompassed by the study:

1. Tempus Air Ltd., a Hamilton Airport based carrier, announced its intention of withdrawing from the scheduled passenger market to concentrate on the air cargo/courier business;
2. Federal Express made an offer to purchase Flying Tiger, an American Cargo carrier for about U.S. \$881 million;
3. PWA made an offer to purchase Wardair, effectively reducing the number of Mainline carriers in Canada to two;
4. Air Canada sold Gelco to Purolator Canada. In addition to acquiring 22% of Purolator, Air Canada received a 10 year commitment from Purolator for the operation of Purolator's flying, moving the leases of B727 aircraft to Air Canada from Kelowna Flightcraft and introducing the extensive use of Air Canada's all-freight DC-8-73 fleet to carry Purolator product. This single event could have significant impact on Hamilton Airport if it entails the moving of the Purolator courier hub operation from Hamilton to other airports such as Winnipeg and Montreal-Mirabel;

5. Ontario Express (Canadian Partner) announced commencement of daily commuter service from Hamilton to Montreal-Dorval effective March 1st, 1989 utilizing ATR 42 aircraft. The service will begin with four flights a day each way;
6. Consolidated Freightways Inc. announced purchase of Emery Air Freight Corp. for about U.S. \$230 million; and;
7. Transport Canada announced on December 12th, 1988 a capacity limit at Lester B. Pearson International Airport of 70 movements per hour. This capacity limit is split into 34 movements per hour for flights using Terminal II, 32 movements per hour for flights using Terminal I and 4 movements per hour for flights using other parts of the Pearson Airport such as the Vista cargo terminal and the entire north-end general aviation area. This capacity limit is a reduction to 70 movements/hour from a previous peak period level in excess of 100 movements. The original announcement suggested that the capacity limit would end on January 15th, 1989, however it has been extended indefinitely. The implications of this event on potential traffic diversion to Hamilton Airport particularly for the hard-hit air cargo sector of air traffic at Pearson, could be significant.

Again it must be emphasized that these are only some of the recent changes in the air transport industry that could have an impact on the potential of Hamilton Airport to attract additional air cargo and courier activity. It also illustrates the dif-

ficulty of making forecasts of specific levels of activity in such a rapidly changing operating environment.

There are many other important considerations to be addressed in any study of the future potential of Hamilton Airport to attract air cargo and courier business such as:

1. The relationship between air cargo and the structure of scheduled passenger routes;
2. The type and amount of cargo/small parcel business that is carried on dedicated (all cargo) aircraft;
3. The distinction between air cargo that is acceptable for carriage on passenger flights and the air cargo that is either restricted or prohibited from passenger flights but which may be permitted on all cargo aircraft;
4. The relationship of air cargo to other modes of transport such as surface shipment by truck or shipment by sea;
5. The development of new business methods such as "just-in-time" inventory control and national marketing approaches using next day delivery guarantees; and
6. The relative competitiveness of other area airports including Lester B. Pearson International Airport (LBPIA), London Ontario, Niagara Falls New York, and Buffalo.

1.3 STUDY OUTLINE

The second chapter provides an outline of the research methodology employed in this study and reviews the interview program conducted within the various segments of the air cargo and courier business. The third chapter provides an assessment of the air cargo and courier market with estimates of growth and the potential for Hamilton Airport to attract it. Chapter 4 gives an assessment of Hamilton Airport including facilities and services, both airside and groundside. This review of the Airport is generally restricted to aspects related to the air cargo/courier business and would be only one component of an overall airport master plan review. Chapter 5 provides an analysis of the findings of the study, concentrating on the strengths and weaknesses of Hamilton Airport for air cargo and courier activity. The objective is to identify those aspects to be reinforced or improved and those aspects to be changed or corrected in order to achieve the objective of attracting additional air cargo and courier services to Hamilton Airport. Chapter 6, the final chapter, presents a series of recommendations broken down into three major groupings. The first set of recommendations relate to the potential for attracting additional air cargo and courier services under three different scenarios of facilities and services at Hamilton airport. The second set of recommendations cover the actual improvements required to specific facilities and services. The final set of recommend-

ations cover the specific actions required by the various public bodies and agencies to attract additional air cargo and courier activity to Hamilton Airport.

The appendices contain supporting documentation including; a complete description of Hamilton Airport, a list of contacts for the study, and summary of typical cargo/courier aircraft, a partial list of restricted and prohibited goods, a list of reference material and a short glossary of terms to help with an understanding of the various technical issues that necessarily had to be addressed in this study.

1.4 ACKNOWLEDGEMENTS

The authors of this study are grateful for the support and cooperation of many companies, agencies and individuals during the completion of this study. The contacts are too numerous to mention here in the text, however special appreciation is expressed for the continuing support and direction provided by the staff of the Planning and Development Department of the Regional Municipality of Hamilton-Wentworth. Their suggestions, questions, and support were invaluable.

CHAPTER 2 - RESEARCH METHODOLOGY

The completion of this study was divided into four basic steps that were set out in general terms in the detailed work program of the job proposal.

2.1 Step 1 - Review of Documentation

The first step covered a detailed review of relevant studies and documentation. A large portion of this material were studies either completed by, or commissioned by, the Regional Planning and Development Department. Also covered were various Transport Canada documents relating to Hamilton Airport development, as well as forecasts and statistical reviews. Numerous industry publications and documents were reviewed for potential input on the growth of the industry and the facilities and services required to support the growth. All of this reference material is listed in Appendix 5. This review of documentation was intended to establish an understanding of current facilities and capabilities of Hamilton Airport as well as establishing a statistical basis for projecting market growth and calculating a potential market share for Hamilton.

One of the major problems encountered very early in the study, and never overcome, was the distinct lack of any reliable statistical information relating to the level of activity in the

courier/small parcel business. As is noted in some detail in the next chapter, government agencies do not collect any type of statistics on the courier/small parcel activity, either in Canada or in the United States. This lack of information is related to a number of factors including; a lessening of record-keeping requirements under deregulation of the air transport industry; a lack of consistency in the units of record-keeping, with the business activity measured more by the number of parcels or envelopes carried, than by the total weight; a large portion of the business activity involves very small companies using small aircraft that would further complicate record-keeping; the incredible diversity in methods of shipment using dedicated large jet aircraft, leased small and large aircraft, pallets or containers on large dedicated freighter aircraft of Mainline Unit Toll carriers, and lastly as bulk belly load on passenger aircraft; and finally a reluctance on the part of individual courier/small parcel companies to divulge business information that is considered strategic and could compromise their competitive position in the industry.

The other major issue involved in the review of documentation is the dynamic nature of the industry. The previous chapter sets out a number of changes or adjustments that have occurred during the course of this study. Any one of these changes could have an impact on the potential of Hamilton Airport to attract more air cargo and courier business. However at the same time there are

industry-wide changes that also have to be accounted for such as the gradual reduction of Mainline Unit Toll jet aircraft service to smaller communities. This infrequent jet service has been replaced with more frequent service by commuter airlines operating smaller turboprop aircraft that have much less cargo capacity than the DC-9 and B-737 type aircraft that previously provided the service. However, notwithstanding the difficulties in producing definitive forecasts in this dynamic environment, the main thrust to concentrate on is one of growth, - continued growth in the air cargo/courier business that is quickly exceeding the capabilities and capacities of airport facilities everywhere.

2.2 Step 2 - Interview Program

This step included an extensive program of contacts with the cargo and courier business as well as with a number of related government agencies. The purpose of the program was to establish the current level of air cargo and courier activity in the Toronto-Hamilton areas and to investigate the potential of Hamilton Airport for the cargo and courier business. The contacts took the form of face-to-face interviews, telephone interviews, review of responses to the Hamilton Airport Operator Survey (December 1988) undertaken by the Regional Planning and Development Department and review of responses to other recent relevant surveys of air cargo and courier companies.

The interviews that were conducted took an open format with the capability to acquire opinions on the potential of Hamilton Airport and the facilities and services necessary to attract additional air cargo and courier business. The emphasis was modified considerably depending on the company or agency interviewed in order to draw upon the particular expertise or interest available from that contact.

The contacts can be grouped into 7 separate categories:

1. Major air carriers such as Air Canada, Canadian Airlines International, Japan Airlines, Lufthansa, Air France, Thai Airways International and Korean Airlines. These airlines carry most of their cargo in the belly of passenger aircraft or on the main deck of combi (passenger and cargo) aircraft. However, some of them do operate dedicated cargo aircraft. The majority of these airlines integrate their cargo business into their passenger route structure and serve only their passenger destinations with cargo service. There are exceptions such as KAL, Korean Airlines, which recently commenced service by all cargo B747 aircraft between Seoul, South Korea and Toronto via Anchorage, returning to Seoul via Vancouver.
2. The next category included courier/air freight companies such as Purolator Canada, Federal Express, Emery Worldwide, UPS,

and Burlington Express. Many of these carriers are American and use one or more centralized hubs in the United States for their operations. For instance, Federal Express utilizes Memphis, Tennessee, UPS uses Louisville, Kentucky, Emery uses Dayton, Ohio, and Burlington Express uses Fort Wayne, Indiana. An interesting observation on these hubs is that they are all located at airports that can handle the traffic that these operators generate (that is they are not major airports in the national passenger network), and each airport is more or less centrally located between the east and west coasts, allowing reasonable access in either direction to their entire continental USA market. Hamilton Airport has these same characteristics of central location, proximity to major markets, both domestic and transborder, and a relatively under-used capability (when compared to the congestion at Pearson). The analysis section of this report in Chapter 5 has a number of findings relating to the desirability of Hamilton Airport for courier/small parcel operations.

3. The next group of contacts was the smaller regional or feeder airlines including those with commercial agreements as feeder carriers to the Mainline Unit Toll carriers, as well as the local courier/small parcel/charter couriers. Included in this group were Ontario Express, Air Ontario, Tempus Air, Kelowna Flightcraft, Soundair, Air Niagara, Jetall, Skycharter and Millardair.

4. Related transportation companies and agencies were canvassed for their opinions on the viability and attractiveness of Hamilton Airport as an air cargo and courier centre. This category included the freight forwarders, the highway transport carriers and the customs brokers. These companies complement and interact with the air cargo business and have very definite views on locational issues as well as groundside facilities at airports. The opinions of the freight forwarders in particular should be considered very carefully because they are the actual users of the air transport services, concerned with delays, congestion, regulatory problems and constraints. Shippers of goods and importers of goods hire the services of the freight forwarders to ensure efficient and expeditious movement of goods, and therefore, tend to transfer the responsibility for the choice of airline and airport of entry to the freight forwarder. This group of companies had very useful input to this study regarding the necessary facilities and services required to support an air cargo facility at Hamilton Airport.

5. Selected shippers of goods such as companies in the automotive industry were contacted for their opinions and observations on the potential for air cargo and courier business at Hamilton Airport. As the previous sections pointed out, this group tends to pass its concerns about shipping onto the freight forwarders; however they did have useful input to make

considering that they constitute the driving force behind the rapid growth of the air cargo and courier business.

6. Government agencies including Canada Customs, Agriculture Canada Inspection Services and Transport Canada were contacted to establish governmental and regulatory concerns relating to the potential of Hamilton Airport for increased air cargo and courier activity. These agencies play a central role in the operation of this part of the air transport industry and can influence the success or failure of any local initiatives. Their comments on future facilities and requirements are constructive and supportive. Chapter 5 reports on the input of each of these agencies individually. Also included in this group is Canada Post. It is a very large user of cargo and courier services and with its increasing aggressiveness in marketing such products as Priority Post, it has set out clearly to challenge the courier companies on their own grounds. Their current impact may not be overwhelming (shipping some 8000 kg - 17,600 lb. of Priority Post a night out of Toronto Pearson Airport), but it is considered as a very high yield product for the current benefactors - Air Canada and Canadian Airlines International. Canada Post had some very interesting observations to make concerning recent initiatives in the USA by the United States Postal Service that may point the way to a similar service in Canada with considerable potential for Hamilton Airport.

7. The final group of contacts includes current users and tenants of the Hamilton Airport as well as Hamilton Airport Management and Transport Canada air traffic control. These contacts were directly related to the assessment of the physical facilities and the services at Hamilton Airport. Most of the results of these contacts are reviewed in Chapter 4 Assessment of Hamilton Airport with Chapter 5 Analysis of Findings completing the work.

2.3 Step 3 - Analysis

The analysis of findings started during the review of the documentation, identifying factors that were relevant to the assessment of the air cargo and courier market and the capability of Hamilton Airport to attract additional business of this nature. As the interviews proceeded, recent trends in these services, and future prospects, were noted along with certain key activators (such as mandatory traffic limits at Pearson International Airport.)

It was during this review of interviews and documentation that a structure for future scenarios was designed. Basically, three levels of facilities relating to three levels of future market activity and three levels of capital improvements were utilized to address different future scenarios. Chapter 5 sets out in detail the three scenarios.

The quantification of the estimates of future levels of air cargo and courier services was less successful than hoped for, but it was possible to identify the relative potential of the various sectors, domestic, transborder and other international. Aircraft types that might be used to provide the various services were also identified and potential impact on the requirement for facilities and services at Hamilton Airport have been noted.

Throughout the analysis the study catalogues the strengths and weaknesses of Hamilton Airport related to the air cargo and courier business. These advantages and shortcomings covered both airside and groundside factors, such as available runway length, amount of warehouse space, size of ramp area, and adequacy of access routes. From this part of the analysis suggested improvements could be identified and tailored to one of the three levels of facilities and improvements chosen for review. All improvements were able to be accommodated by the three different growth scenarios.

Although an assessment of the potential for attracting air cargo and courier services currently using Pearson Airport to Hamilton Airport was seen originally as a separate study function, it became more a function of completing each of the three growth scenarios to establish the viability of this proposition. The rapidly deteriorating traffic (airside) conditions at Pearson and the Transport Canada imposed capacity limits have enhanced the

feasibility of some movement or spin-off of air cargo and courier services to Hamilton from Pearson. A word of caution is required though, because probably 80 to 85% of all cargo carried into and out of Pearson International Airport moves in the belly of passenger aircraft. With the increasing numbers of wide-bodied aircraft being acquired, and Pearson retaining its predominant position in passenger movement in Canada it can be assumed that Pearson will continue to be the single largest air cargo hub in Canada. But having stated that caution there are still numerous opportunities available to Hamilton which are identified in later chapters.

2.4 Step 4 - Recommendations

The report produces a series of recommendations in Chapter 6 that are divided into three major groupings.

1. Recommendations as to the potential of attracting additional air cargo and courier services to Hamilton Airport. These are prepared for three different scenarios representing three distinct levels of facilities and services at Hamilton Airport.

2. Recommendations as to what specific facilities and services could be improved and to what level they should be improved. Although three growth scenarios are employed and there are

certain thresholds of service that appear, many of the changes are part of a continuous progression of improvements involving a series of discrete changes in facilities and services. There has been an attempt in the report to arrange these changes in ascending order of their impact on the attractiveness of Hamilton Airport. In addition, probable capital investment and complexity of government commitments have been reviewed to try to establish relative cost effectiveness of the various changes.

3. The final recommendations relate to the specific actions required by the Regional Municipality of Hamilton-Wentworth, Transport Canada and other involved public bodies such as Canada Customs, Agriculture Canada and the Ministry of Transportation of Ontario to assist in attracting additional air cargo and courier development.

CHAPTER 3 - ASSESSMENT OF AIR CARGO AND COURIER MARKET

3.1 INTRODUCTION

Any review of potential for air cargo and courier business must address the scale and nature of the market available. What is the size of the total market and how is it divided into domestic, transborder and other international? What has been its historical growth rate and what are the projections for its future growth? What are the drivers of thus business and what are the major constraints on future growth? How does the growth translate into new facilities at an airport as well as into additional aircraft movements? These questions and many more can be posed about the air cargo and courier business to define what potential Hamilton Airport has to participate in it, and what could, or should be done at Hamilton Airport to realize its potential.

It is obvious when reviewing the literature and statistics that the whole subject is one of dynamic growth. Entire sectors of the economy have come to rely very heavily on the capabilities of the air cargo and courier business in order to operate, let alone operate efficiently. We now expect to see a year-round choice of exotic as well as staple fruits and vegetables at our food stores made possible by air shipment of the goods from California, Florida, South America, Europe, the South Pacific and Asia.

Whether it be kiwis from New Zealand, grapes from California, berries from Chile or oranges from Morocco we now enjoy a varied choice of food stuffs that could only be made available by air shipment. The same can also be said for our exports of similar products. Another area where the impact of air shipment has become increasingly important is in the development of Just-in-Time (JIT) Inventory Control. This process provides for a very small inventory of parts to be maintained at the site of a manufacturing concern with a continuous supply being required from all the various parts suppliers. Again, air shipment of parts becomes a necessity to either provide the regular channel of supply or else to respond to shortages as they occur at the manufacturing concern. The auto industry, so dominant in the Southern Ontario economy, is an important proponent of these inventory techniques and thus a very heavy user of air cargo and air courier services.

With the importance of the air cargo and courier business in our rapidly growing economy, the importance of good industry statistics on volumes shipped by air is evident, to establish the scale and nature of the market. However, as a starter the Government in Canada (as well as in the U.S.A) does not collect statistics on courier/small parcel shipments. The only information available is from the carriers themselves and through industry associations and publications. The carriers are reluctant to release information that might have strategic

importance to their competitors. At best they might reveal their activities either in terms of gross revenues or gross levels of shipments i.e. number of parcels or total weight carried. There is even some difficulty because of the lack of consistency in the units of record-keeping. Usually courier companies are interested in units shipped even though the unit could be an envelope or a parcel with a maximum weight of 30 kg or 50 kg (65lb or 110 lb). Traditional cargo carriers measure their volume of business not in numbers of parcels carried, but rather in tonnes or tonnes/kilometres combining both weight and distance carried.

This study has attempted to review the relevant Transport Canada statistics collected on air cargo and draw conclusions in relation to the potential of Hamilton Airport. In addition, where appropriate, information gleaned from the interview program, as well as the review of current literature, have provided insights into the growth of the air courier market and some indication as to the potential of Hamilton Airport. There are many factors in addition to the size of the market, affecting the potential of Hamilton, and these are reviewed in other chapters.

3.2 CARGO STATISTICS

Transport Canada collects information on air cargo shipments and provides forecasts of future growth. The latest available information has been taken from TP-7960E - Transport Canada Aviation Forecasts 1988-2001. This document covers a number of topics including number of passengers, number of aircraft movements, and enplaned-and-deplaned cargo. Enplaned-and-deplaned cargo for a given airport is defined as the total tonnage of revenue cargo loaded and unloaded at the airport. The Transport Canada statistics cover forecasts for Mainline Unit Toll and International Charter services at the "Top 30" Canadian Airports. Hamilton Airport is not included in this listing primarily because it does not receive any Mainline Unit Toll service.

The report indicates that since the 1982 economic recession, overall growth in air cargo in Canada has been a strong 3.8% compared to the 2.6% per annum experienced from 1977 to 1981. Two reasons given for this recent strong cargo growth is the realization by companies of the advantages of keeping lower inventories and having goods shipped from suppliers by air and also the increased competitiveness in Canadian business making air freight a necessary form of transportation.

Recent statistics show a strong growth in the Transborder and other International sectors but a poorer performance in the Domestic sector. One reason for the poor Domestic figures may be a shifting of cargo business from Mainline Unit Toll carriers to Other Unit Toll carriers. Other Unit Toll (OUT) carriers do not report cargo statistics and they may be absorbing cargo traffic that is not included in the published statistics.

There are also regional differences in the growth of air cargo. The highest growth in 1987 was recorded by Ontario at 13% increase in cargo traffic over the 1986 level reflecting the strength of the Ontario economy.

3.3 OVERALL CANADIAN GROWTH - AIR CARGO

The forecast is for continued growth based on the strength of the Canadian economy with total E & D cargo for the "Top 30" Canadian Airports to increase at a rate of about 3% per annum over the medium term (1987-1996). The strongest growth sector is expected to be the other International scheduled traffic with 3.3% per annum, with Transborder sector expected to be 2.6%. This latter growth rate does not reflect the full potential of the implementation of the Free Trade Agreement and may have to be revised upward. The Domestic sector is forecast to receive an annual growth of 3%.

Ontario is expected to continue with a relatively strong growth rate of 2.7% over the 1987-96. This growth in Ontario is significant when absolute numbers are considered.

The Enplaned-and-Deplaned Cargo-for Mainline Unit-Toll and International charter are set out in Exhibits 3-1, and 3-2. National totals by Region are shown on Exhibit 3-1 and totals for the "Top 30" Airports are shown on Exhibit 3-2.

Exhibit 3-3 provides a summary of Total Cargo Enplanements and Deplanements for the "Top 30" Airports by airport for 1987 and the forecast for 1996 and 2001. The important factor to note in this Exhibit is the predominance of Pearson International with 43.5% of the overall total E & D Cargo in 1987 for all of Canada, and forecast to remain close to that percentage of total E & D Cargo into the future.

Contacts in Transport Canada forecasting office Ottawa refer to the cargo statistics and forecasts as being "soft", that is the statistics and forecasts for cargo are less reliable than for other activities such as passengers or aircraft movements. This opinion is supported by material supplied in Appendix B of TP7960E relating to the accuracy of Transport Canada Aviation Forecasts, where the accuracy of cargo forecasts has had the least reliability of all forecasts prepared by Transport Canada.

EXHIBIT 3-1

October 1988

Emplaned-and-Deplaned Cargo
Mainline Unit Toll and International Charter
(000 Tonnes)

NATIONAL BY REGION

<u>Year</u>	<u>Atlantic</u>	<u>Quebec</u>	<u>Ontario</u>	<u>Central</u>	<u>Western</u>	<u>Pacific</u>	<u>National</u>
1980	29.37	121.83	186.92	36.08	67.72	77.81	519.73
1981	33.37	113.82	183.44	41.89	69.52	76.83	518.87
1982	29.91	99.60	185.51	31.07	68.54	73.79	488.42
1983	29.53	113.18	196.51	29.82	70.28	81.79	521.10
1984	34.62	129.21	227.79	30.32	75.36	87.71	585.01
1985	34.70	126.71	232.00	26.07	77.22	89.35	586.04
1986	34.51	121.44	224.21	22.54	64.06	92.75	559.51
*1987	36.36	120.31	253.36	18.49	58.39	94.82	581.73
1996	44	172	321	29	82	125	773
2001	49	193	376	32	96	143	889
<u>Average Annual Growth Rate, %</u>							
1987/96	2.1	4.1	2.7	5.1	3.8	3.1	3.2
1987/01	2.2	3.4	2.9	4.0	3.6	3.0	3.1

* Estimated

EXHIBIT 3-2

October 1988

**Enplaned-and-Deplaned Cargo
Mainline Unit Toll and International Charter
(000 Tonnes)**

TOP 30 AIRPORTS

<u>Year</u>	<u>Mainline Unit Toll</u>			<u>Total</u>	<u>Int'l Charter</u>	<u>Grand Total</u>
	<u>DOM</u>	<u>TB</u>	<u>OI</u>			
1980	319.5	75.1	79.2	473.9	9.4	483.3
1981	320.0	72.4	78.1	470.6	13.2	483.7
1982	306.8	62.6	77.3	447.0	14.9	461.9
1983	331.5	63.2	92.2	487.3	8.5	496.0
1984	360.0	67.1	120.4	547.5	11.7	559.2
1985	354.9	63.5	127.9	546.4	18.7	565.1
1986	316.5	61.3	138.6	516.4	22.9	539.1
*1987	308.6	68.4	148.9	525.9	29.8	555.7
1996	403	86	200	689	36	725
2001	456	96	231	783	42	825

Average
Annual
Growth
Rate %

1987/96	3.0	2.6	3.3	3.0	2.1	3.0
1987/01	2.8	2.5	3.2	2.9	2.5	2.9

* Estimated

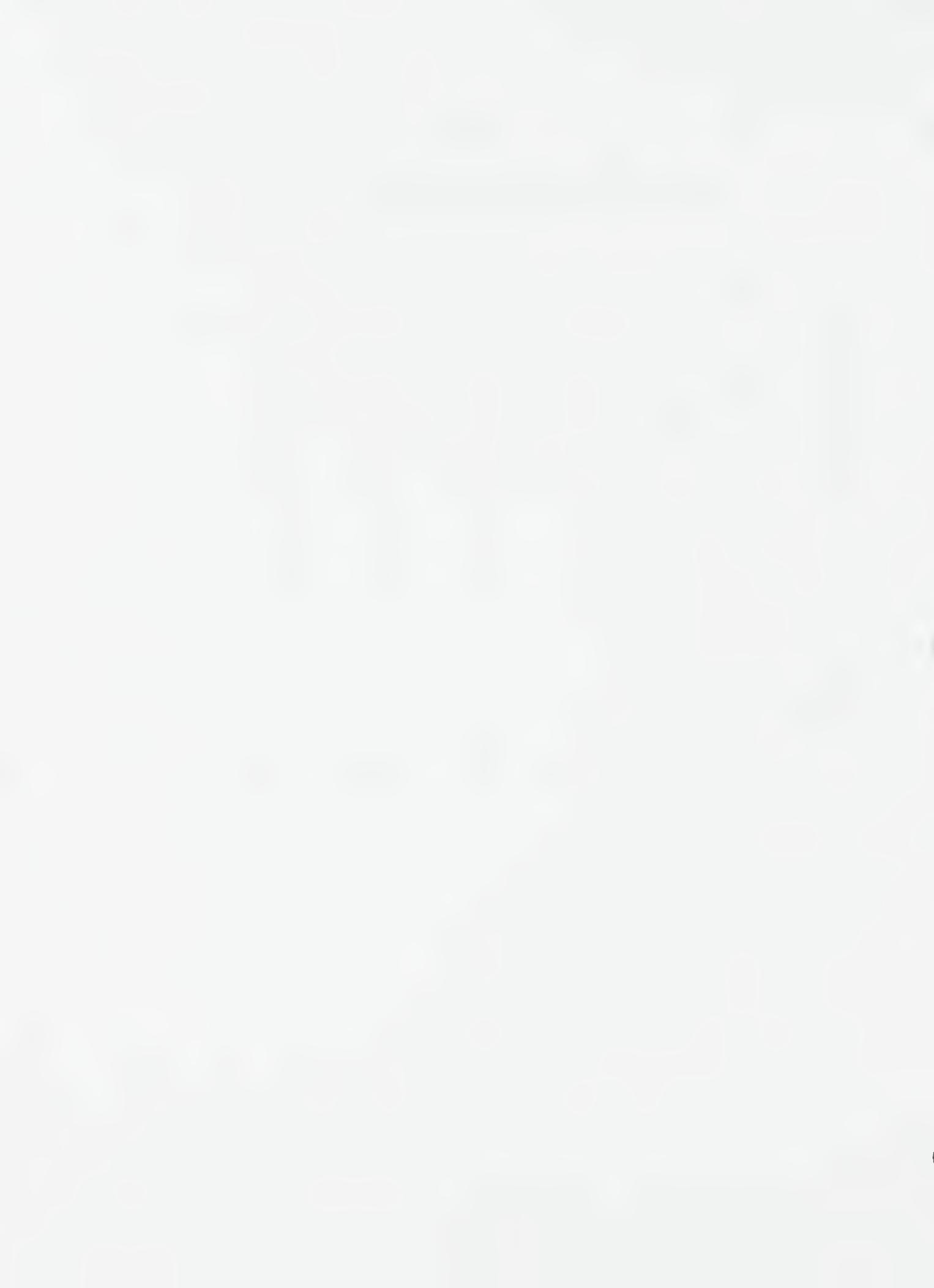
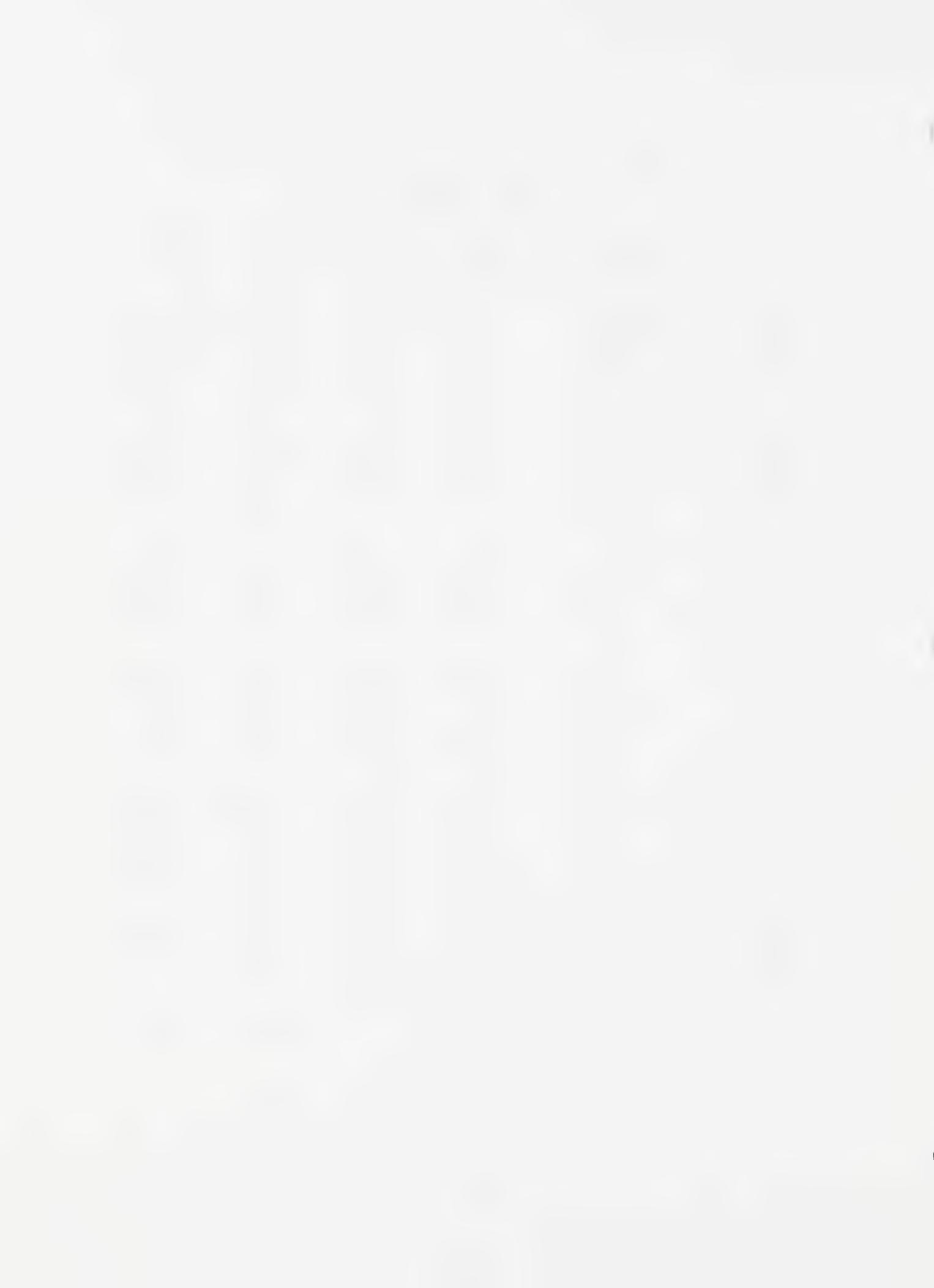


EXHIBIT 3-3

Total Cargo Enplanements and Deplanements
(Metric Tonnes)

<u>Airport</u>	1987			1996	2001
	Total E & D	Percent of Total	Cumulative Percent	Total E & D	Total E & D
1 Pearson Int'l	241,500	43.5%	43.5%	315,000	352,300
2 Vancouver Int'l	90,300	16.2%	59.7%	115,700	133,000
3 Mirabel	80,500	14.5%	74.2%	108,100	124,700
4 Dorval	28,400	5.1%	79.3%	36,800	42,300
5 Calgary Int'l	26,100	4.7%	84.0%	33,600	38,500
6 Edmonton Int'l	24,300	4.4%	88.4%	34,000	39,200
7 Halifax	20,600	3.7%	92.1%	25,100	28,800
8 Winnipeg Int'l	12,200	2.2%	94.3%	17,800	20,500
9 Ottawa	9,000	1.6%	95.9%	9,300	10,700
10 St. John's	6,600	1.2%	97.1%	8,400	9,600
11 Sept-Iles	1,500	0.3%	97.4%	2,100	2,400
12 Quebec	1,400	0.3%	97.6%	1,900	2,200
13 Saskatoon	1,300	0.2%	97.8%	1,700	2,000
14 Edmonton Munic.	1,200	0.2%	98.1%	1,600	1,900
15 Regina	1,200	0.2%	98.3%	1,800	2,000
16 Fort St John	1,200	0.2%	98.5%	1,600	1,900
17 Moncton	1,100	0.2%	98.7%	1,300	1,600
18 Gander	1,100	0.2%	98.9%	1,300	1,500
19 Saint John	1,100	0.2%	99.1%	1,400	1,600
20 Thunder Bay	1,000	0.2%	99.3%	1,500	1,700
21 Charlottetown	1,000	0.2%	99.4%	1,300	1,500
22 Prince George	600	0.1%	99.6%	800	1,000
23 Kelowna	600	0.1%	99.7%	900	1,000
24 Windsor	400	0.1%	99.7%	400	500
25 Fredericton	400	0.1%	99.8%	600	700
26 Victoria	300	0.1%	99.9%	500	500
27 Sydney	300	0.1%	99.9%	500	600
28 Kamloops	200	0.0%	99.9%	300	300
29 Sudbury	200	0.0%	100.0%	200	300
30 Sault Ste Marie	100	0.0%	100.0%	100	200
TOTAL	555,700			725,600	825,000



The accuracy has averaged a 14.6 mean absolute percent error over 7 years (1979-1985).

This level of unreliability relates to numerous factors such as the fact that Other Unit Toll carriers do not report statistics.

To put the cargo volumes for Pearson and the Province of Ontario into a wider perspective, cargo throughput at some of the major airports of the world has been listed in Exhibit 3-4 along with the percentage change from the previous year. These figures come from the Traffic Statistics for BAA Airports 1987/88. Both the actual volumes as well as the rate of growth for the Canadian airports are relatively conservative when compared to other airports in the U.S.A., Europe and Asia.

3.4 IMPACT OF CARGO STATISTICS ON HAMILTON

The foregoing discussion of Transport Canada cargo statistics and forecasts provides an opportunity for calculating the residual cargo potential for all airports in Ontario other than Pearson International Airport (such as Hamilton, Ottawa, Windsor, London, Sault Ste Marie, Sudbury, and Thunder Bay). By taking forecasts for enplaned-and-deplaned cargo for the entire Province of Ontario and subtracting the forecast volume for Pearson

EXHIBIT 3-4

Cargo Throughput Major Airports 1987*

<u>Airports</u>	<u>Cargo (Tonnes)</u> <u>(000's)</u>	<u>% change</u>
New York (JFK)	1071.4	+ 7.9
Los Angeles	909.9	+ 15.9
Frankfurt	909.3	+ 10.5
Tokyo-Narita	860.0	+ 16.8
Chicago-Ohare	678.9	+ 16.5
London-Heathrow	576.3	+ 6.0
Miami	564.7	+ 12.7
San Francisco	550.6	+ 11.1
Paris (CDG)	546.3	+ 6.9
Amsterdam	513.7	+ 13.8
Singapore	418.2	+ 18.8
Atlanta	363.9	+ 19.7
Dallas	336.0	+ 3.2
New York-Newark	294.8	+ 9.7
Seattle	258.9	N/A
Brussels	233.5	+ 21.8
Zurich	229.5	+ 3.9
Toronto	225.1	+ 2.7
Paris-Only	217.7	+ 7.7
Vancouver	95.1	+ 5.6
Montreal Mirabel	80.1	- 0.5
Montreal Dorval	30.1	+ 2.0

* Information prepared by Forecasters and Statistics Section of British Airport Services Ltd. and are published in Traffic Statistics for BAA Airports 1987/88.

International Airport, a rough approximation of potential air cargo for Ontario's other airports is achieved. The qualifier that applies to this figure is that it is cargo carried on Mainline Unit Toll and therefore may not be applicable to Hamilton, because Hamilton Airport is not served currently, by any Mainline Unit Toll carriers.

EXHIBIT 3-5

Total Enplaned-and-Deplaned Cargo (in Metric Tonnes)

<u>Year</u>	<u>Ontario Region</u>	<u>Pearson Int'l</u>	<u>Other Ontario Airports</u>
Current (1987)	253,360	241,500	11,860
1996	321,000	315,000	6,000
2001	376,000	352,300	23,700

The figures in Exhibit 3-5 indicate that annual cargo volumes at Pearson International Airport are forecast to grow by 110,800 metric tonnes by 2001 while the rest of the Province experiences a combined growth in annual cargo volumes of 11,840 metric tonnes. The figures for other Ontario Airports are produced by subtracting the total for Pearson International from the total for the Ontario Region. It is suggested that forecasts produced specifically for other Ontario Airports would show a consisted growth from 1987-1996 to 2001.

It is quite obvious that based on these figures Hamilton Airport would have a very nominal growth in cargo volumes unless it is able to attract an increasingly larger portion of the Toronto-centered cargo business that is forecast to go to Pearson International Airport. The potential for Hamilton to develop such an attraction and the constraints on Pearson International Airport that will support such a shift in business are discussed in detail elsewhere in this report. What is important is to realize that a diversion of 10% of the forecast growth for Pearson's air cargo business is equivalent to the total projected growth at all other airports in Ontario as presented in the Transport Canada forecasts.

An analogous situation that indicates that an airport near a major scheduled carrier airport can in fact attract and sustain high cargo volumes independent of the passenger aircraft traffic, is available as close as Detroit. The predominant air carrier airport serving Detroit is the Detroit Metropolitan Wayne County Airport handling about 19,000,000 passengers in 1987 and serviced by some 25 air carriers. However when cargo is considered, Detroit Willow Run Airport, which has no generally published scheduled air carrier cargo service, accounts for over half of the State of Michigan air cargo service with 129,040 tons compared to Detroit Metropolitan with 97,770 tons in 1986. The key to the predominance of Willow Run Airport is the fact that it handles the types of cargo which auto manufacturers give priority

to with their "just-in-time" inventory management. With the concentration of auto production in the Detroit area this airport has been able to prosper and grow without service from the Mainline Unit Toll Carriers that operate at Detroit Metropolitan. The implications for Hamilton and its relationship with Pearson International Airport are obvious. An airport can grow in cargo volumes without the strong passenger traffic base that is available at Pearson and Detroit Metropolitan.

Another interesting distinction between the air cargo business in Canada and elsewhere is that approximately 66% of air cargo carried by Canadian airlines is domestic with the remainder being transborder or other international. Foreign airlines, on the other hand, carry approximately 80% international cargo and 20% domestic. This relationship would seem to indicate an opportunity for growth in air cargo for Canadian carriers in the transborder and international markets that far outweighs the potential for domestic air cargo growth. This change has implications for facilities on Hamilton Airport.

There appears to be a wide diversity of opinion on the potential for growth in the air cargo business with the Transport Canada forecasts representing the most conservative level of growth. Within the industry much more aggressive growth figures are used, such as Air Canada's growth (in cargo revenues) of 62% in 4 years, or Federal Express (Canada) growth of about 50% a year,

each year, for the last 3 years. Actually the courier or overnight delivery system (ONDS) of the industry has typically experienced annual growth rates in the region of 10% to 20% in the past but now appear to be settling down to rates of 5% to 10% per year. These slower rates of growth are still two to three times greater than the official Transport Canada's projection of 2.7% average annual growth rate in air cargo in Ontario from 1987 to 1996.

3.5 COURIER/SMALL PARCEL GROWTH PROJECTION

It has been frequently projected that Canada's overnight delivery system (ONDS) is a Cdn \$ 1 Billion/year business. However only 15% of all the items travel by air and they generate about 30% of the overnight delivery industry's revenue. This amount of air courier business would be about \$300,000,000.00 a year. If it is expected to grow at a conservative 5% to 10% per year as compared to the previous more aggressive growth of 10% to 20% per year, then some \$15,000,000 to \$30,000,000 new business will be added each year. Assuming a distribution of this business approximating the regional distribution of air cargo business in Canada, then Ontario, Central Ontario in particular, can probably expect to see the major portion of the growth in the air courier business - say 40% to 50% of the national total. This distribution would translate into a growth in courier business in the Toronto-Hamilton Region of up to \$15,000,000 per year.

This new courier business is not so closely tied to the operations of the Mainline Unit Toll carriers (such as Air Canada, Canadian Airlines International and Wardair) and is dependent for its growth on easy access to airport facilities, particularly through the night-time hours when time-sensitive deliveries are being shipped and received. Its growth will also be related to the use of dedicated aircraft rather than the use of belly space in passenger aircraft. Interestingly the same parameters can be applied to priority mail which has the same requirements as other overnight courier business.

The most difficult exercise is to translate this growth in both cargo and courier business into actual aircraft movements. There are many factors clouding this calculation. If it were simply a matter of taking increasing tonnage figures along with a reasonable load factor and an average estimated capacity per aircraft (such as 42,000 kg or 92,500 lbs - on a DC8 - Cargo aircraft then one could calculate an additional aircraft movement at say every 30,000 kg of additional air cargo to move (assuming approximately 75% load factor). However, it is inappropriate to generalize about aircraft size and capabilities because aircraft capacities vary from several hundred kilograms up to over 100,000 kg. depending on the type of aircraft and the route being flown. The key to this issue at Hamilton Airport is that there should be no foreseeable limit on the number or frequency of cargo flights or their operating hours. The same cannot be said for Pearson

International Airport which will have to rely more and more on the currently under-used belly space on passenger flights to handle future cargo growth. Combi aircraft that carry a mix of passengers and cargo on their main deck would also be included in the growth potential for Pearson.

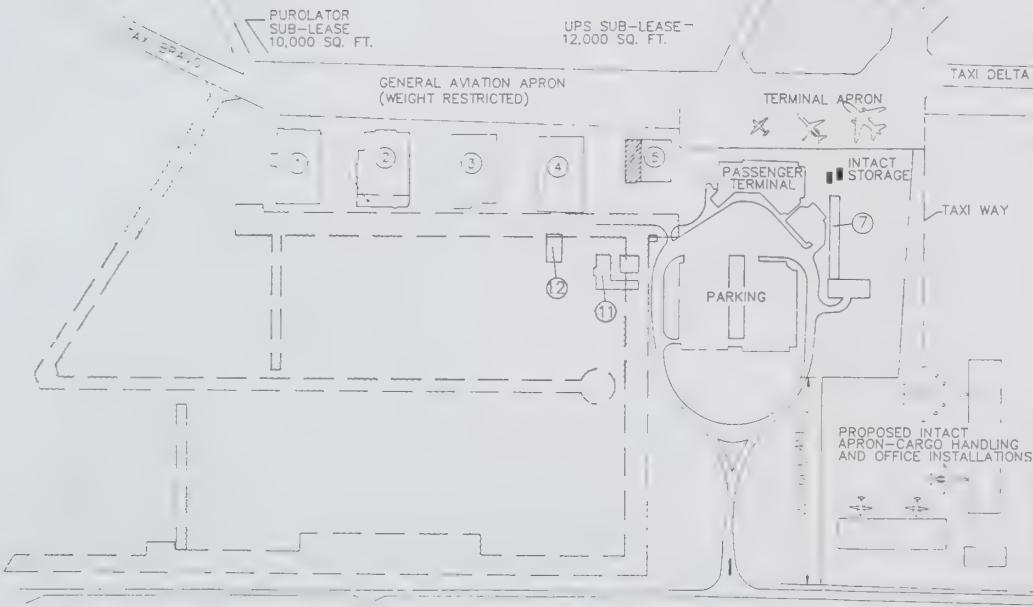
CHAPTER 4 - ASSESSMENT OF HAMILTON AIRPORT

4.1 INTRODUCTION

A review of the facilities and services, both Airside and Groundside, at Hamilton Airport that are relevant to the issue of air cargo and courier potential has been completed. This chapter gives a brief summary of the current situation and provides some comments about the adequacy of the Hamilton facilities. The information was acquired through the interview program, from site visits and from previous documentation provided by Hamilton-Wentworth. Included in this section is a brief explanation of any current proposals that have been received for cargo and courier facilities. Appendix 1 - Description of Hamilton Airport contains a complete listing and description of Hamilton Airport's facilities and services. This material was sourced from the Canada Flight Supplement and from the Hamilton Airport/Airport Industrial - Business Park Inventory of Existing and Proposed Facilities.

4.2 PRESENT FACILITIES

The present air cargo and courier facilities at Hamilton Airport are illustrated on Exhibit 4-1.



LEGEND

- ① HANGER 1 (HAMILTON FLYING CLUB)
- ② HANGER 2 (PENINSULAIR)
- ③ HANGER 3 (CANADIAN WARPLANE HERITAGE, INC.)
- ④ HANGER 4 (CANADIAN WARPLANE HERITAGE, INC.)
- ⑤ HANGER 5 (GLANFORD AVIATION)
- ⑦ HANGER 6 (EXPERIMENTAL AIRCRAFT ASSOCIATION)
- ⑪ STORAGE
- ⑫ CARGO BUILDING (EMERY COURIER; MH CARTAGE)
- ⑬ R.E. WINTER PROPOSED GENERAL AVIATION AREA
(POSSIBLE AIR CARGO / COURIER AREA)

CURRENT CARGO AND AIR COURIER FACILITIES

EXHIBIT 4-1

4.2.1 Ground Handling - Aircraft

Exhibit 4-1 indicates that there are two main cargo handling areas, the current air terminal apron, or main ramp area, and the general aviation ramp, or old hangar line ramp. The main ramp area easily holds two DC8 and one B-727 aircraft with additional space still available. It could accommodate two wide-bodied aircraft such as DC10's without interfering seriously with the normal ramp activity generated by carriers such as Nationair and Pan-Am Express. The apron adjacent to the passenger terminal is the only aircraft parking area suitable for aircraft weighing more than (approximately) 11,000 kg or 25,000 lbs. The General Aviation (G.A.) apron to the west of the Air Terminal Building (ATB) apron is utilized by aircraft of up to 20,000 to 27,000 kg or 45,000 to 60,000 lbs. because of the limited space available on the ATB apron, but these aircraft cause cracking and breakage of the G.A. apron surface. The boundary between the two aprons is not well marked, especially for night operations.

Each of three handling companies indicate the capability to tow/push up to the largest aircraft types. Fuelling is available for all aircraft types. At least two deicing trucks are available for bad weather operations.

4.2.2 Ground Handling - Cargo

The airport is well equipped with the necessary mobile equipment for loading and unloading containers, pallets and bulk cargo to and from all aircraft types from B747 down to Piper Navajo/Cessna Citation. The equipment includes a scissor lift with roller platform, conveyor belts, both mobile and towed, trucks, tractors, dollies, baggage carts, large and small forklifts and other ground equipment. Also available are both water and lavatory service trucks. The scissor lift is capable of handling catering as well as pallets and containers to the largest aircraft types.

4.2.3 Indoor Storage and Cargo Handling

Four organizations on the airport provide Air Cargo/Air Courier Services.

Glanford Aviation Services Limited

This company is the leaseholder of Hangar 5. In addition to providing aircraft servicing and maintenance for both based and itinerant aircraft, the company sub-leases 12,000 sq. ft. of the hangar to United Parcel Service Canada (UPS), an air/ground courier company operating a worldwide parcel service in conjunction with affiliated companies in the United States and

other countries. Glanford Aviation provides UPS with both aircraft service and loading and unloading service for all of UPS air operations at Hamilton. Glanford Aviation Services is equipped with an extensive inventory of equipment which permits it to load, unload and move large aircraft in an expeditious manner.

Hamilton Air Service Ltd.

This company has its airport offices in a large trailer adjacent to the passenger terminal. The company is equipped with specialized vehicles for loading/unloading all types of cargo to/from the largest aircraft, as well as moving the aircraft on the parking apron when necessary.

INTACT Aviation Service Ltd.

This company has its airport offices in a large trailer adjacent to the passenger terminal. Immediately to the east of the office the company has two steel quonset huts, each 800 sq. ft. in area, and two sea containers. These facilities are used for storage of equipment and/or short term storage of freight in transit. One of the structures is approved by Canada Customs as a sufferance warehouse for international goods.

The company also is fully equipped to load/unload and/or move the largest aircraft and also to service the turn-around of large passenger aircraft.

Purolator Courier Ltd.

This company is the sub-lessee of 10,000 sq. ft. in Hangar 2, from the lessee, Peninsulair Ltd.

Purolator has an inventory of equipment suitable for loading/unloading their own loads of parcels to and from their own or leased aircraft (up to Boeing 727). Their equipment and personnel are dedicated to the company's operations only.

Most of the limited cargo storage (parcel sortation) space available is located at some distance from the only adequate apron. This leads to high levels of activity of trucks and tractor trains to and from and among operational aircraft in all weather and lighting conditions.

Subsequent to the completion of the research work in this study, Purolator entered into an agreement with Air Canada whereby Air Canada assumed responsibility for the flight operations of Purolator for a 10 year period. This agreement has brought a major re-alignment of Purolator flying and a move out of Hamilton Airport.

4.2.4 Bonded Storage

One 75 sq. m. quonset hit is an approved sufferance holding area, and approval of a large additional area is expected soon.

4.2.5 Airport Aircraft-Accommodation

Aircraft up to L1011 have used the airport (typical gross weight 204,000 kg + or 450,000 lb +) and, DC8 and B707 aircraft (typical gross weight of 136,000 kg + or 300,000 lb. +) have been operated routinely on stage lengths of 1600 km to 4,800 km + (1,000 to 3,000 mi) during all seasons at Hamilton Airport. However, most of these so-called heavy jets, that is in excess of 136,000 kg or 300,000 lb. would be weight restricted for take-off on the longest runway of 8,000 ft. This limitation would restrict either payload or fuel-load reducing the profitability and competitiveness of Hamilton Airport operations for long-haul heavy jet aircraft.

Exhibit 4-2, Markets Served by Aircraft Type from Hamilton Airport, relates the geographic market area covered, to the aircraft utilized. It is obvious that Hamilton Airport can serve a broad range of domestic and transborder destinations with aircraft types ranging from the Merlin, and Falcon 20 up to the B727. In order to serve other International destinations long-haul aircraft such as the B747, DC8 and DC10 are necessary. There is a direct relationship between the facilities on Hamilton Airport (including maximum runway length) and the aircraft that can economically and safely operate out of the present facilities. This relationship then has a bearing on what markets can be exploited from Hamilton Airport as it currently exists and

what markets can be served if certain improvements are made to the Airport.

There is no hangar space (or apron access to hangars, for that matter) for large (over 22,680 kg or 50,000 lb.) aircraft in the case of a requirement for even minor repair or component replacement, necessitating the use of outdoor locations on the main air terminal ramp.

4.2.6 Customs

The passenger and parcel handlers consider the customs service they receive as adequate however there is a separate discussion of this issue under the review of interviews in the next chapter.

4.2.7 Security

The service companies appear to be satisfied with the level of security provided for most loads/operations and say that they can and do employ their own guard for special situations. There is room for improvement in the security system and it will become more noticeable as the level of cargo/small parcel activity increases.

4.3 NIGHT OPERATIONS

A large part of the current non-passenger traffic is concerned with one or other of the air courier operations. By their nature, these operations must, and do take place, mainly in the night time hours.

The ATS Control Tower is closed from 11 pm to 7 am local time. The runway and taxiway lights are left on, but not the approach lights (due to probability of wind shifts). Aircraft arriving after that time are in the control of the Toronto Air Traffic Centre. The Centre is officially aware only of traffic operating under Instrument Flight Rules. Certain traffic under visual flight rules has no obligation to report itself to the Centre, although all aircraft in the area must monitor the Aerodrome Traffic Frequency, and broadcast their intentions (commencement of service by the newly installed Radar will probably make it possible for the Centre to monitor all aircraft activity in the area). The Centre monitors the Instrument landing System on Runway 12L-30R only (not the ILS on Runway 06-24). The Toronto Centre is not aware of the movements or whereabouts of airport maintenance vehicles on Hamilton Airport although such vehicles monitor aircraft radio transmissions. All of these (minor) shortcomings in the information and guidance available to the arriving/departing pilot make after hours operations marginally less safe than when the tower is open.

The Aviation Weather Centre in the Terminal building is closed from 9 pm to 6 am local time. Pilots requiring weather briefing during these hours obtain information by telephone from the Toronto Flight Service Station, but do not have access to synoptic charts or other visual presentations, or to observations (other than their own) of local weather.

Although there are four separate organizations operating ground vehicles there is no control over their movements. At night between 11 pm and 7 am there is no control over aircraft ground movement.

While the terminal building is equipped with both a coffee shop and a duty free shop (which sells confectionery items, tobacco and magazines) neither of these services is open during the night hours of maximum air courier and air cargo activity. Aircrew with the air courier and air cargo companies are not able to utilize these facilities during loading/unloading stopovers and would have to make arrangements for catering with suppliers off the airport.

4.4 CURRENT AIRSIDE FACILITIES

The current level of aviation activity at the airport, including private, training, and passenger and cargo commercial operation, is comfortably accommodated by the existing runway, taxiway and

apron (airside) installations, and is also well within the capability of the staff and the communication facilities of the Air Traffic Service Control Tower, and the navigational facilities in service. In the opinion of the Manager of the ATS Control Tower, both the runway/taxiway system and his organization could deal with up to 50 more movements (arrivals or departures) daily without becoming overloaded. At approximately that level the taxiway system would be a restricting factor. The combination of the necessity for many of the larger aircraft to taxi on the runway to reach the take-off point on both runway 06-24 and 12L-30R, and the single taxi route from the north end of the airport to the Terminal aprons, now occasionally causes delays, and these delays would become serious with a significant increase in traffic.

The very limited full service taxiways (five having a pavement load rating permitting operation of aircraft of B737-DC9 or heavier) is also a major obstacle to any plan to increase the cargo handling (or major aircraft servicing) capability of the airport.

While considerable unused or under-used land is within the airport boundaries or immediately adjacent to the boundaries, extensive new taxiways would have to be constructed to permit this land to be utilized.

As pointed out by the ATS Manager, increased activity of medium to large aircraft would also require major extension of the taxiways to and adjacent to runway 12L-30R to facilitate aircraft movement.

4.5 GROUND ACCESS

The issue of ground access brought considerable response during the interview program in this study. Actually the issue was a combined one of location and accessibility. There appears to be a continuing perception of Hamilton Airport as being quite remote and difficult to find. In actual fact the Airport is much closer and convenient to the market it serves than is perceived. There is a system of roads accessing the Airport from three different directions; 1 - Highway 403 at Fiddler's Green Road, 2 - from the Queen Elizabeth Way via Centennial Parkway, Highway 20, Highway 6 and Airport Road West, and 3 - from the downtown area of Hamilton via Upper James Street south and on to Highway 6 continuing the second route. These approaches to the airport are shown on Exhibit 4-3, Location and Access.

There are two proposals for upgrading access to the Airport. The first proposal would realign Highway 6 and remove Airport traffic passing through Ancaster via Fiddler's Green Road.

Fiddler's Green Road is currently restricted for commercial vehicles with an upper weight limit of four metric tonnes from Highway 53 to Highway 6. Unfortunately the Highway 6 realignment project has received no funding approval, which could indicate a very long term for completion. However this project should have the highest priority in order to provide a clear, direct routing from Highway 403 to the Airport. This Airport route would provide direct access to the largest portion of air cargo and courier ground transport which will approach Hamilton Airport from the east and the west on Highway 403. When Hamilton Airport is taken out of the context of a local facility and placed in the perspective of a regional air cargo facility serving the Toronto-Hamilton area as well as London, Kitchener-Waterloo, Cambridge, Brantford and St. Catharines, then the primary access corridor is Highway 403. This unrestricted route is particularly required to attract and support courier services at Hamilton Airport which prefer unrestricted routes to carry their time - sensitive goods. It must be given highest priority along with some type of interim solution for access from Fiddler's Green Road to overcome the current weight restrictions.

The second road proposal is the proposed East-West/North-South corridor connecting the Queen Elizabeth Way with Highway 403. The early phases of work have begun but the corridor will not connect to Highway 403 until between 1996 and 1999. Although this route is important to the Airport it is of secondary nature

compared with the direct access off of Highway 403.

4.6 DEVELOPMENT PROPOSALS

Two proposals for airport development relevant to air courier/air cargo activity are currently active or under consideration.

1. International Air Cargo Terminals (INTACT) Development

The first stage consists of construction of a hangar and parking apron for maintenance of aircraft up to the largest wide-body types. Construction of this stage is planned to commence in early 1989 and occupies approximately 4.0 ha (9.9 Ac.)

The second stage, adjacent to the first, is a plan for construction of an apron, two cargo handling buildings, and an office building. The site and layout of this stage is shown on Exhibit 4-1. The scale of this proposal is quite significant, occupying approximately 6.0 ha (14.8 Ac.), however the details of it require evaluation using the design guidelines presented with the conceptual air cargo proposal presented in Chapter 5.

2. R.E. Winter Proposal

This proposal was developed for Transport Canada, primarily as a re-development and expansion scheme for General Aviation facilities at the airport. The new taxiway and road pattern proposed for this development is shown by dashed lines (item 13) on Exhibit 4-1. While the plan envisioned serving a number of moderate sized General Aviation operations, it could be readily adapted to serve one or two major air courier/air cargo operations.

An advantage of this development would be to separate air courier/air cargo activity from air carrier terminal operations on the airport. A disadvantage would be that the taxiway pattern would be a cul-de-sac, with a potential to create taxiing delays.

The Winter proposal for a General Aviation area, if modified for use for Air Cargo or Air Courier purposes, would provide two areas, one of 7.4 ha (18.3 Ac) ± and one of 10.0 ha. (24.7 Ac), divided by a taxiway, or one area of 18.0 ha (44.5 Ac) ± served at the west end only, by a taxiway.

Location and Access



Legend

- Existing Airport Access Routes
- Proposed Re-alignment of Highway No. 6
- Proposed Extension of Highway No. 403
- East-West North-South Route

Long Term Improvements

SOURCE
HAMILTON AIRPORT / AIRPORT
INDUSTRIAL BUSINESS PARK
STRATEGIC PLAN

October 1988
Planning and Development Department
Hamilton-Wentworth Region

CHAPTER 5 - ANALYSIS

5.1 COMPONENTS IN AIR CARGO AND COURIER SERVICES

Although this is a study of "air cargo and courier" potential at Hamilton Airport, it is necessary to clearly understand the distinction between "air cargo" on the one hand and "courier" on the other. There may be a tendency to blur the distinction between these two quite different products or services, solely because they are both travelling by air, and therefore must all be high priority time sensitive shipments. Courier shipments are usually weight limited - sometimes to 30kg (65lb) other times to 50kg (110lb) and frequently are smaller envelopes or parcels. The courier service offers time specific delivery guarantees such as same-day, overnight, or next day delivery. Because the majority of air-shipped courier business is the overnight delivery service, it includes pick-up from the shipper on day one, delivery to the airport, movement to destination by air (either directly - or through hub - such as Federal Express operates at Memphis) then delivery to the receiver the next morning by a guaranteed delivery time (usually 10:30 am to noon). The key issue is that the movement of the shipment by air occurs during night time hours. This night time movement requirement has a good news/bad news aspect to it. The good news is that night time movements are outside the normal peak travel times for passengers and therefore the entire air transport system-airports, terminal areas and ground facilities tend to be

operating well below capacity. Of course, the aviation facilities are also staffed well below capacity levels because it is an off-peak time - therefore creating new artificial capacity levels governed by personnel policies. This is the case at most Air Traffic Control Towers such as at Pearson International Airport - where 24 hour service is provided - but at a much decreased level during the night. The bad news is that many airports have very stringent noise policies that limit the type and number of flights and/or the type of aircraft utilized during the so-called "quiet" hours. The successful operation of the American air courier companies relates to their choice of hub airports where their parcel sortation occurs and their major aviation activity takes place. All of these hub airports provide for 24 hour a day operations, allowing arrivals very late at night and then subsequent departures with their new load occurring usually around 4 to 5 am.

This need for 24 hour operation is an essential requirement to the courier business. Hamilton has that capability now and will only retain an attraction for courier business as long as the 24/hr a day operation is maintained. On the other hand Pearson International Airport allows operations only by certain classes of aircraft during the "quiet hours". For instance aircraft under 35000 kg (approx 75,000 lb) are allowed freedom of movement while larger aircraft in the B727 or DC9 class are prohibited from overnight landings and takeoffs. Any courier operation that

utilizes a combination of say B727 freighter aircraft supported by smaller aircraft such as Merlins must look for airports with 24 hour access.

Air cargo on the other hand does not have the same requirement for guaranteed overnight delivery. The products that are moving this way instead of by surface shipment require more rapid movement - as in the case of fresh fruit - but do not require the guaranteed overnight delivery. Once the requirement for overnight delivery is eliminated, then these goods (air cargo) may be shipped on regularly scheduled passenger flights. Passenger flights have large capacities for cargo in the belly compartments and in some cases on the main deck in so-called "combi" aircraft that are part freighter - part passenger. In actual fact the largest portion of air cargo moves as load on regular scheduled passenger flights. This portion probably constitutes over 80% of all cargo shipped. There are however complete aircraft dedicated to the carriage of air cargo and operated both by air cargo specialty firms such as Flying Tiger or by Mainline Unit Toll carriers such as Air Canada, Air France, Korean Airlines, and Lufthansa. The advantages of the pure, or dedicated, air cargo aircraft is that they are able to carry large volumes of containerized goods, goods of a size inappropriate for passenger aircraft or goods that are unacceptable or actually prohibited from carriage on passenger aircraft.

Appendix 4 lists a number of goods that are either restricted in amount or prohibited completely from carriage on passenger aircraft. These same goods may be acceptable for carriage, under certain restrictions on dedicated cargo aircraft. There are other cargos because of their nature such as livestock that are only appropriate on cargo aircraft.

The normal pairing of cargo movement to passenger flights means that the majority of that cargo traffic, of necessity, will use the same airports as the regular scheduled passenger flights. Airports such as Pearson International and Vancouver will have continuing strong growth in air cargo volumes, based on this fixed relationship. The all freighter aircraft of the Mainline Unit Toll carriers tend to use the same airports as their passenger aircraft simply because the ground handling facilities for their cargo are large, complex and costly capital investments that must be utilized for all the cargo requirements. In some cases that cargo handling occurs in ground facilities dedicated to one carrier (such as Air Canada) and in other cases it is a "public" facility shared by a number of airlines (such as the Vista facility of Pearson International).

The majority of air cargo carriers (that is the passenger airlines) sell only the air carriage of the goods and they rely on a large network of other companies such as freight forwarders, customs brokers, and ground transport companies to provide the

remainder of the service required in moving goods from a shippers facility to the receiving customers location. This arrangement means that a complex infrastructure of specialized companies has evolved in this air cargo business, mutually dependent on each other to complete the entire process of air cargo movement. These large infrastructures of service companies have a propensity to locate together, on or near major passenger airports. As long as the basic relationship exists it will be difficult to move part or parts of this system to an entirely new location such as Hamilton Airport.

5.2 RECENT TRENDS AND FUTURE PROSPECTS

The previous section explained the relationship among the various components of the air cargo and courier business. It is obvious that it will be more difficult to build up cargo business that would more logically be tied into the regular air cargo shipments on passenger aircraft. It is expected that a large portion of this business for the Toronto-Hamilton area will continue to operate out of Pearson International Airport. However any air cargo shipped on dedicated cargo aircraft and all air courier business in particular, which requires 24 hour access to airports, will find Hamilton increasingly attractive. Any specialty markets such as the shipments in support of the auto

industry and shipments of perishables and livestock, are likely candidates for use of Hamilton Airport.

Regardless of the increased use of combi aircraft and the growth of air freight transportation by passenger airlines, forwarders are confident that use of exclusive freighter aircraft and freight charter operations will grow much faster. Experience with JIT Inventory Management in the automotive industry points to continuing growth of 10% to 12% for air cargo business each year for the foreseeable future. Forwarders believe that Toronto cannot, even with new Terminals, begin to handle such growth.

The beneficiaries will be Buffalo, Detroit, Chicago and New York if Hamilton does not gear up to handle this air cargo business that could almost naturally fall into its lap.

Some forwarders believe that if Hamilton embarked seriously on an air cargo program and sought to attract major air cargo carriers, Hamilton could soon surpass Toronto as the major air cargo hub in Eastern Canada and for much of upstate New York, Pennsylvania, and Ohio.

Automotive companies will need more charter capacity in the next few years. Because twenty-four hour service is essential, these charters have to utilize one of the smaller regional airports, i.e. Oshawa or Hamilton.

A future trend for air cargo marketing is the concept of door-to-door service as opposed to airport-to-airport service. Integrated users/carriers such as Emery, Federal Express and KLM (Royal Dutch Airlines) will be looking to expand their markets. They are looking at the higher-weight market moving from small parcels to air freight. KLM already has a door-to-door product called "Door-Speed" which is now offered only to Europe but will be expanded to include imports to North America. Exporters from Ontario will soon be offered a delivered price to their clients' door(s), excluding duty. Airport-to-airport rates will soon be a thing of the past.

Many aspects of business now requiring courier service are being replaced by computerized information exchanges such as electronic mail. The trend to paperless operations will reduce need for air and ground transportation speed.

Most freight forwarders and ground transportation companies believe that there will be a substantial growth (estimates range from 8% to 15%) of goods coming into central Canada from the Pacific Rim countries. They see this growth as having already started and continuing through the next number of years.

Two major freight forwarders, who recently returned from the Far East, suggested that Hamilton look at what has happened in Singapore if they wish to attract air cargo and courier tonnage.

The civil aviation authority of Singapore has recently embarked upon an advertising campaign aimed at promoting air cargo movement through Singapore.

In addition, Singapore has added two more terminals to the freight centre which will increase the Singapore airport terminal services freight handling capacity by 200,000 tons a year, to a total of 500,000 tons. The cost of this expansion, including handling facility, amounted to \$49 million.

The new Singapore air cargo terminals include four refrigerated decks for perishables, an additional cold room for bulk perishables and a valuable cargo system which has an automated roller system from the aircraft straight into the security vault.

Small shipments are handled by two huge carousel systems while larger cargo shipments are stored and retrieved in a fully automated stacker system which allows use of the warehouse facility to a height of 28 feet.

Other features of the new Singapore air terminal services freight system include the use of bar codes and programmable controllers which allow terminal operators to move containers to and from pre-selected points in the terminal with the push of a button.

5.3 RESULTS OF INTERVIEW PROGRAM

Chapter 2 described the seven categories of contacts that were made to determine the potential of Hamilton Airport. This section will provide additional detail on the findings.

5.3.1 Group 1 - Major Air Carriers

The majority of the airlines carry air cargo as a secondary product on their passenger aircraft. This relationship of cargo and passenger aircraft tends to limit their air cargo efforts to their passenger routes. They develop cargo facilities at their passenger destinations and are reluctant to develop cargo facilities until such time as they commence passenger service at Hamilton.

The majority of these Mainline Unit Toll carriers have established their major operations base for Ontario, and in some cases for Canada, at Lester B. Pearson International Airport. There is little incentive at this time to split their operations between Pearson and Hamilton, particularly for the two major Canadian carriers, namely Air Canada and Canadian Airlines International. These two companies have established major air cargo handling facilities involving large capital investment at Pearson Airport and will continue to operate their cargo operations out of that airport where they can utilize the large

uplift capability that exists in the belly holds of their growing fleets of wide-bodied passenger aircraft. Air Canada could operate some or all of its pure cargo fleet of 6 DC8-73F aircraft out of Hamilton, independently of its passenger operation at Pearson but that would necessitate a complete duplication of their current extensive air cargo handling facilities at Pearson as well as major costs related to additional personnel. Hamilton Airport could be used as an alternate airport for bad weather operations that prohibit landing at Pearson except that weather that is bad enough to close Pearson Airport is usually bad enough to affect operations at Hamilton Airport because of the proximity of the two locations (38 n.m.). In addition, airlines usually prefer to divert to airports where they have an established base with personnel and services to handle such irregular operations; therefore airports such as Ottawa and Montreal-Mirabel tend to be utilized for this purpose instead of Hamilton.

The main requirements would be a modern full-service air cargo terminal with all the ancillary services such as customs and Agriculture inspection services, handling companies, maintenance, freight forwarders, brokers, and office space, and secondly a runway of sufficient length to support long haul flights to more distant locations such as overseas. This latter concern is particularly relevant because the overseas sector of the air cargo market is targeted as having the greatest potential for growth.

5.3.2 Group 2 - Courier/Air Freight Companies

This group represents the single, largest potential market for Hamilton Airport. Their needs can be addressed with 24 Hour airport service and dedicated cargo terminal facilities with the necessary related services such as Canada Customs, Agriculture Canada Inspection Services and good ground access to the airport. Their air cargo terminal needs could be met in the interim by a shared cargo facility serving a number of companies (such as Vista at Pearson International Airport) however they all express a desire to control their own operations and prefer their own dedicated cargo terminal. To provide for such dedicated facilities at Hamilton, properly serviced land with good access to airport aprons and taxiways will have to be provided. These companies will also need much improved ground access to the airport, particularly to the Highway 403 corridor so that they can then easily access to the entire Toronto - Hamilton - London area. An advantage of encouraging or developing this sector of air cargo potential is that the majority of it is able to operate from the present runways at Hamilton Airport. This sector of aviation is primarily Domestic and Transborder and the type of aircraft that they operate and the distances that they fly are compatible, for the most part, with Hamilton's current runway capabilities. The increasing congestion and limitations on air courier/freight companies at Pearson International Airport

present an opportunity for Hamilton to aggressively pursue this sector of the market.

These companies are having increasing difficulty in getting appropriate landing slots at Pearson, and are unable to find locations on that airport where dedicated air cargo terminals could be built. Add to that, the high cost structure of services and facilities at Pearson, along with the restrictions through the night hours on large aircraft movements and Hamilton becomes even more attractive. These opportunities should be exploited by any marketing program that Hamilton Airport pursues.

5.3.3 Group 3 - Regional/Feeder Airlines and Local Courier/Small Parcel Charter Carriers

The small regional and feeder airlines have not offered much potential for cargo and small parcel business development because their major business thrust is in the passenger market. This passenger business is often tied into a hub operation with a larger carrier such as Air Ontario - Air Canada at Pearson and Ontario Express (Canadian Partner) - Canadian Airlines International at Pearson. Also in the past these smaller airlines have tended to operate aircraft that were inappropriate for cargo haulage because their limited payload was dedicated to passenger carriage. Now, however, some of the aircraft in operation such as the ATR42 operated by Ontario Express (Canadian Partner) offers considerable cargo capability and even has a so-

called "quick-change" (QC) option that allows conversion from passenger service to all cargo service in a very short time. This option would allow an airline to operate passenger service through normal daytime hours with conversion to an all cargo configuration for operations at night, greatly increasing the utilization of the aircraft. As is mentioned elsewhere in this report, Ontario Express is commencing scheduled passenger service from Hamilton to Montreal-Dorval, four times daily, on March 1st, 1989, using ATR42 aircraft.

These companies offer a potential for cargo operations that will tend to be as support and feeder service for the larger cargo and courier companies, as well as providing specialty and high priority charter operations - such as priority shipments of auto parts to auto manufacturing facilities. These companies could help establish Hamilton Airport as a hub for courier/air cargo movements, feeding the major air routes of the large courier companies. The restrictions faced by air courier companies at Pearson International Airport apply to a certain extent to these companies as well. Particularly important is the potential restriction on the arrival/departure slots at Pearson International Airport where scheduled passenger flights are receiving higher priority. These capacity concerns are not an issue at Hamilton and offer a marketing strategy emphasizing the freedom to grow and prosper at Hamilton both in terms of actual

aircraft movements, connections with couriers, and potential for new ground facilities.

5.3.4 Group 4 - Related Transportation Companies

Freight Forwarders

A principal concern of freight forwarders is that regardless of development at Hamilton, Toronto will remain an air cargo centre. For the freight forwarder this raises the specter of maintaining two airport facilities; offices, warehouses, staff etc. The cost of duplicated facilities would negate many of the desired economies of scale or cost reductions available from a new air cargo facility or new technology and may in fact be an impediment to Hamilton becoming established as "the" air cargo facility in Central Canada.

Generally freight forwarders do not believe that any airport, Hamilton or elsewhere, can effectively take over all or even most of the air cargo traffic now passing through Toronto for two reasons. The first is air carrier operating license restrictions. The second is the inseparability of passengers and cargo on airlines and routes operating "combi" aircraft. Consequently, freight forwarders worry about being constrained into maintaining two air cargo facilities almost next door to and competing with each other, i.e. one to serve those passenger airlines that fly into Toronto but not Hamilton, and another to

serve those freight carriers that would be induced to fly into Hamilton. The financial burden of maintaining two facilities severely dampens enthusiasm forwarders initially have regarding prospects for moving to Hamilton.

A continuing problem faced by most air freight forwarders is that of air cargo traffic being low man on the totem pole compared to passenger and courier traffic. For example, although many major airports have dedicated customs clearance facilities for courier services, no matter how urgent, air cargo generally has to go through an air cargo terminal. Customs clearance for air cargo takes much longer and is more complex to process than either courier consignments or passenger baggage.

The Canadian International Freight Forwarders Association has made representation to the International Air Transport Association (IATA) to support establishment of special express handling centers at major airports. The objective is to obtain customs release of express consignments within one hour of presentation of documentation. IATA has suggested to customs authorities in Europe and the United States that advance documentation on each shipment could be transmitted electronically to the center before the consignment arrives to help minimize delays. This feature alone, if implemented at Hamilton Airport, would be a major inducement to shift traffic to Hamilton from Toronto.

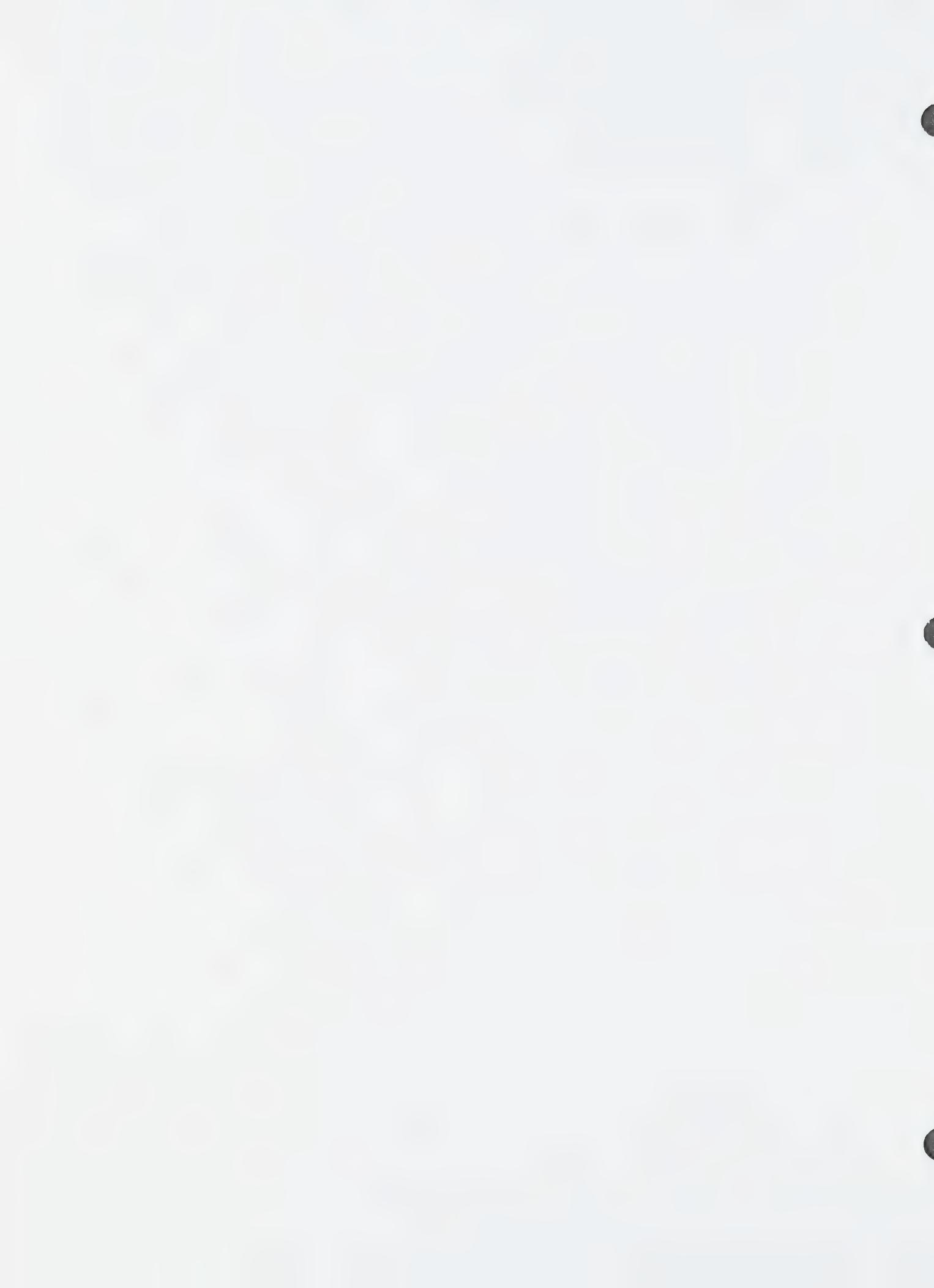
However an experiment using such a "pre-arrival processing" procedure is currently underway at Pearson Airport with Federal Express, in an attempt to expedite handling of their daily volume of 7000 inbound parcels.

Of importance to air freight forwarders are materials handling systems geared to container systems. It is felt in the freight forwarding industry that the pallet container system is now established as an industry standard and should be an integral part of designing any new airport cargo handling facility.

Increased dependence upon air cargo, as opposed to surface transportation for purposes of reducing inventory, demand that shipper delivery guarantees be met. Customers are increasingly requiring guarantees of delivery by a particular date, as well as tracing reports in order to minimize inventory costs but prevent the even more costly problem of plant shutdown. Any consignment delay, whether it be in handling or customs clearance, has a major negative effect on air cargo to compete with less expensive surface transportation.

Ground Transportation Companies

The major perceived drawback with respect to Hamilton is highway carrier access. It is too far from major highways, namely from the Queen Elizabeth Way and Highway 403. The problem of getting



trucks in and out of the Hamilton Airport speedily must be addressed if Hamilton is to compete at all.

Highway access from the 403 must be improved, preferably by provision of a four lane controlled access highway.

Air freight for automotive assembly plants in southwestern Ontario and Buffalo by general carriers is a steady business. Priority is frequently given to charter aircraft especially if there is fear of a plant shutdown. There is concern about the 4 ton load limit access routes to Hamilton Airport. If Highway 53 and Fiddler's Green Road were upgraded, it would act as an incentive for air cargo movement into and out of Hamilton Airport.

Materials handling equipment provided by the "airport authority" should be sufficient for and compatible with pallet handling systems, and any new system that might be developed. It must be available to serve all aircraft, freight forwarders and truckers without discrimination.

5.3.5 Group 5 - Industrial Shippers/Receivers

Industrial Shippers/Receivers

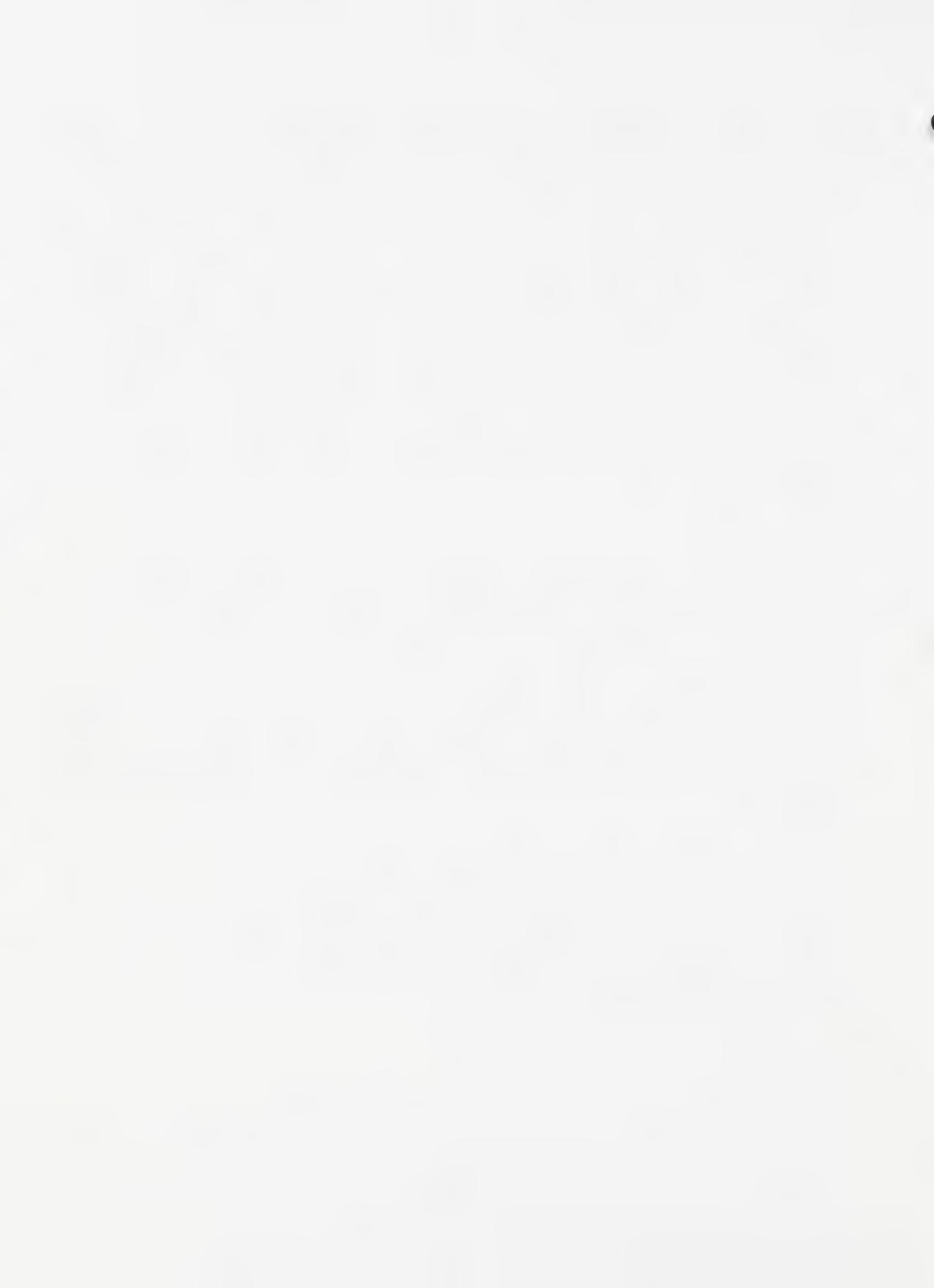
Generally, industrial shippers and receivers of air freight do



not directly suffer or experience the frustrations of using Pearson International Airport. General practice is that industry (manufacturers, distributors, service companies, importers and exporters) deals with an air freight forwarder. In so doing he needs to call only one phone number to obtain all relevant information. Frequently he needs only to deal with one person to effect all transactions respecting documentation, importing, exporting, dangerous goods regulations, packaging, certificates of origin and other data pertaining to foreign tariffs and regulations.

Consequently, the ultimate purchaser of air cargo transportation is insulated from the frustrations of airport congestion, delays, breakdowns in communication, operating costs, security, etc. These problems are the albatross of the freight forwarders and the carriers and generally speaking the ultimate customer simply does not care where or how his goods arrive as long as he gets them.

This is borne out by the consensus of shippers and receivers that they do not believe they will feel or notice any difference in cost or service if Hamilton becomes "the air cargo hub" and Toronto concentrates on passengers.



5.3.6 Group 6 - Government Agencies

Canada Customs

Customs is a major problem for forwarders and couriers at Toronto. Customs always seems to be backed up, and procedures are just too slow. Hamilton should pre-empt this situation by establishing twenty-four hour customs clearance service as a matter of course.

Other comments respecting customs problems suggested that if operations, warehousing operations, offices, etc. moved away from the airport to the industrial park, Customs Officers would not attend. The forwarders believe that Revenue Canada will not split their operations to accommodate different locations on and off the airport. These people believe they are stuck paying higher rents and other costs on the airport that might be avoided off the airport.

Canada Customs, Hamilton Region, is enthused at the prospect of Hamilton Airport becoming a major air cargo centre. From the point of view of Canada Customs, a general sufferance warehouse approach would prove to be most efficient. Such a concept would have one airport authority managing the warehouse and each of the forwarders or carriers subleasing or renting part of it. Such a concept is well established in the trucking industry right across

Canada, but not the airline and forwarder industries. The practice now is for each air carrier, ground carrier or forwarder to maintain his own exclusive private sufferance warehouse.

If this was to happen the Canada Customs staff contingent could grow from the present nine people to perhaps 11 to 15 people, but able to process up to five times the present volumes of air freight. Also, given sufficient growth of business, there are no reasons why, if required, Customs could not operate twenty-four hours a day just as a matter of course.

Conceptual planning for a new era of air cargo traffic through Hamilton should consider provision of adequate space for fifteen Customs people, including areas of file storage, lunch room and male and female washrooms. Details of their requirements will be provided in accordance with Revenue Canada minimum staff facility requirements at the time of detailed design of cargo terminal facilities at Hamilton Airport.

Agriculture Canada Inspection Services

Facilities necessary for Hamilton to be appropriately equipped as a world class air cargo assembly and distribution centre must, from the point of view of Agriculture Canada, include a cooler room capable of maintaining a temperature between 2 and 5 degrees celsius, a warm room capable of maintaining a temperature between

18 and 22 degrees celsius, a freezer room capable of maintaining a temperature below zero celsius, a lockup area for traffic refused entry into Canada, and an inspection area. The inspection area would need rudimentary facilities of a small laboratory.

None of the above facilities need to be excessive in size; rooms of 20 feet by 20 feet would probably be adequate.

In addition, to facilitate simplified handling and disposal procedures there should be on the airport a pathological incinerator for disposal of all contaminated agricultural waste. This includes waste material from aircraft, products refused entry and even stalls and pens used for transportation of livestock.

Security of goods must be assured to keep complete shipments together. Frequently at Pearson International Airport duplicate inspections are required because inbound shipments become separated into different areas. Domestic and foreign traffic must be segregated, i.e. as in the case of cats and dogs which if domestic do not need to be inspected for rabies and vaccinations, but which if being imported must be.

Cattle pens suitable for holding up to 400 head of cattle should be constructed to allow proper receiving and inspection of

livestock imports and exports. Quarantine facilities must also be established for birds and animals and waste until such time as it is authorized for removal or disposal.

The total complement of staff expected to be put in place by Agriculture Canada would be seven people requiring two private offices, a work area for four people and space for equipment and supplies.

Plans drawn up for an agricultural inspection facility at the Pearson International Airport will be made available to the Hamilton Airport Study if required.

Transport Canada

Transport Canada - Ontario Region indicated that there is no formal Transport Canada initiative regarding the upgrading or improvement of Hamilton Airport that would directly impact on its potential to attract air cargo and courier business. The Transport Canada Land Use Plan for Hamilton Airport is the main statement relating to the future of the Airport. However the Land Use Plan constitutes neither an expressed nor an implied commitment by Transport Canada to fund or undertake any of the projects identified as future requirements and in addition, there is little indication as to when the elements of the Plan should be implemented. For instance, the Plan does provide for up to a

10,500 ft runway but does not indicate when it should be built (that is the extension of the 8,000 ft 12L-30R to 10,500 ft).

It would appear that the initiative for implementing any specific improvements to the Hamilton Airport will have to be taken by Hamilton-Wentworth, at which time Transport Canada will respond.

Canada Post Corporation

Canada Post is a very large user of cargo and courier services and with its increasing aggressiveness in marketing such products as Priority Post, it has set out clearly to challenge the courier companies on their own grounds. Their current impact may not be overwhelming (shipping some 8000 kg - 17,600 lb. of Priority Post a night out of Toronto Pearson Airport), but it is considered as a very high yield product for the current benefactors - Air Canada and Canadian Airlines International.

Canada Post Corporation has been studying and talking directly with the United States Postal Service in order to understand how the U.S. service has managed to recover a significant amount of parcel post traffic from couriers.

Although air and express mail accounts for less than six percent of the United States total Postal Service freight movements, it has been sufficient for them to enter into long term air cargo

contracts with Evergreen International Aviation Inc., in order to provide overnight service to 23 major cities.

Of importance to this Hamilton Airport Study, the United States Postal Service's main thrust in recovering air business was to establish an express mail hub at Terre Haute, Indiana. This city was chosen because the airport authority, in much the same situation of Hamilton, was able to provide, within 18 days from when negotiations commenced, a mail sorting building. The other major consideration was that Terre Haute, situated in the mid-west, was strategically located between time zones.

Once the new postal hub was established, airport tower operation was extended from 16 to 24 hours a day, permitting postal service charter aircraft to begin arriving shortly after midnight, have mail sorted and pull out early in the morning.

Canada Post is open to discussion and negotiation for a similar service that would tie in with the Gateway Postal Station in Mississauga.

While it would appear logical that Pearson International Airport located in Mississauga would be used because of proximity to Gateway, congestion and hours of operation restrictions make use of Hamilton an attractive alternative. As most postal traffic arrives and departs after hours, it is believed that ground

transportation from Mississauga to Hamilton Airport, using Highway 403 and the Queen Elizabeth Way, would not take more than 45 minutes on average.

The opportunity of providing a dedicated facility for Canada Post is an exciting opportunity that should receive immediate attention as a result of this study. Once again it would appear to be a case of "niche" marketing rather than a less effective broad spectrum approach to cargo/air courier marketing for Hamilton Airport.

5.3.7 Group 7 - Current Users and Tenants of Hamilton Airport

The most pressing need is for a modern full-service "public" air cargo facility. It is called a public facility in the sense that it is accessible by all users and not dedicated to one specific carrier. This facility should include all the necessary services required for air cargo such as Canada Customs, Agriculture Canada Inspection Services, Freight Forwarders, brokers, transportation companies, and ancillary facilities such as cafeteria and catering services and aircrew rest and flight planning facilities. A conceptual proposal for such a cargo handling facility is included later in this chapter.

- 5.4 ADVANTAGES AND DISADVANTAGES OF HAMILTON AIRPORT

It is appropriate to summarize the advantages and disadvantages of Hamilton Airport for Air Cargo as perceived by the people interviewed in this study and as indicated in the various documents reviewed.

5.4.1 Advantages

- No restriction on hours of operation - 24 hour capability appears to be Hamilton's primary attraction.
- Adequate airside capacity with little of the airside congestion problems that are occurring at Pearson International Airport.
- Accessibility of the airport and the individual facilities on the airport. This advantage springs from the relative lack of activity at Hamilton Airport in comparison to Pearson International Airport. Congestion of ground traffic around Pearson and in the immediate vicinity of the cargo areas on Pearson Airport are continually cited as major disadvantages at Pearson. If road access and manoeuvering areas at Hamilton Airport can be upgraded to accommodate growth in cargo traffic then Hamilton will retain a relative advantage over Pearson in this respect. It is interesting to note that although accessibility is

shown as an asset, it is also a constraint in that the major freeway routes to the Airport using the Queen Elizabeth Way and Highway 403 do not link directly with the Airport and require immediate attention in the area of Fiddlers Green Road where commercial traffic is weight restricted.

- Free Parking - Respondents who commented on the parking at Hamilton Airport were aware of the rapidly increasing costs of parking and other services at major airports and were pleased with the lower cost structure at Hamilton as evidenced by free parking.
- Geographic Location - The location west of Toronto and closer to the rapidly growing cities of Kitchener-Waterloo, Cambridge, Brantford and St. Catharines offers reduced ground transit time for cargo shippers in these areas.

5.4.2 Disadvantages

- Lack of Facilities - This disadvantage includes both the lack of any modern cargo terminal as well as the lack of hangar space for maintenance and servicing operations on cargo aircraft.
- No ATS Tower Operation at Night - Chapter 4 has explained this problem and the inconveniences associated with it as well as the possible degradation

of safety.

- No Long Term Storage Space - This constraint could be corrected on the airport or on the adjacent Industrial/Business Park.
- Runway Inadequate for Long-Haul Aircraft. The current 8000' of runway is simply inadequate to service the long-haul cargo aircraft and leaves the International sector of the cargo market very difficult to serve out of Hamilton.
- Poor Surface on G/A Taxiways and Ramp Area - The rapidly deteriorating surface of the general aviation ramp and taxiways prevents most cargo aircraft from utilizing the entire airport and tends to create congestion on the terminal ramp area that must be shared with passenger aircraft.
- Road Access is Unsatisfactory. The airport is difficult to find and the route from Highway 403 is weight restricted.
- Lack of 24 hour Customs.
- Poor security - Interestingly this is a comment that is also made about the cargo facilities at Pearson. At Hamilton it is a function of the lack of traffic and perceived need.
- Lack of a general cargo terminal - with handling equipment for containers, that would be available to all users. Much of the current capability exists as

- dedicated to one or another specific air courier rather than being available to any potential user.
- No Night Time Restaurant and Catering - Aircrew involved in cargo and courier operations are not provided with facilities for meals and refreshments during the peak period of their activity, at night.
 - Poor Public Transit Service - This problem tends to be a chicken and egg issue, with the public transit service responding to, but not leading, the demand for additional services.
 - Lack of Passenger Flights - Because a large percentage of air cargo moves on passenger aircraft many respondents thought that there was little potential for air cargo until the level of passenger flights increased.
 - High Cost of Fuel - Hamilton Airport is reported to have fuel costs that are considerably above its major competitors - Pearson International Airport, Detroit, Buffalo and Niagara Falls, New York.

5.5 FUTURE SCENARIOS

It became apparent during the study that the future options for Hamilton Airport would have to be evaluated within some set of limited alternatives. It was decided to use three basic scenarios for evaluating the future potential of Hamilton Airport

to attract additional air cargo and courier activity. These scenarios should be able to accommodate a broad range of improvements as well as a broad range of cargo activity.

5.5.1 Scenario 1 - Status Quo

This option utilizes the facilities that are on the ground at the present time at Hamilton Airport. It assumes that whatever growth occurs, it is accommodated by existing groundside and airside facilities. It is a rather pessimistic outlook because it tends to overlook the shortcomings of the existing facilities for Hamilton Airport. It does recognize that the Airport is not operating to capacity and has the ability to handle more aircraft movements while providing less than satisfactory cargo terminal facilities and no aircraft hangarage capabilities. This option would do little to support the proposed Airport Industrial-Business Park because cargo volumes would not grow to generate support or spin-off activities.

5.5.2 Scenario 2 - Improved Cargo Facilities

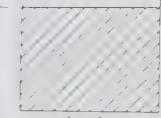
This option concentrates on the improvements to the groundside facilities that are required to service air cargo and/or air courier business. It assumes only nominal improvements in airside facilities and services and therefore precludes any major attempt to encourage growth in the International sector of air

cargo where larger aircraft with long-haul capabilities would require access to Hamilton Airport. Runways would not be lengthened and the only taxiway improvements would be the extensions necessary to access any new air cargo terminal development.

However this option does recognize that the major deficiency of Hamilton Airport related to air cargo is the lack of any modern air cargo terminal/warehouse facility. It is assumed that the basic level of improvement in this scenario would be the construction of a "public" air cargo facility modelled along the approach of the Vista Terminal at Pearson International Airport. The idea is to develop a cargo terminal that is available for all users and although not necessarily run directly by the airport authority could be run under contract by an appropriate commercial operation.

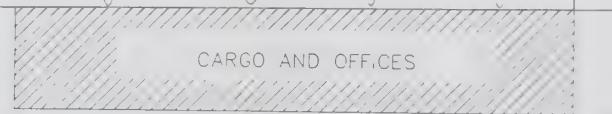
A conceptual plan has been developed and is illustrated on Exhibit 5-1. The building is meant to be expandable and could be constructed in modules of 46m x 61m (150 ft x 200 ft). This facility would occupy an area of approximately 16.0 ha (39.5 Ac.) including the area required for clearance from the airport taxiway. Installation of an initial facility consisting of 3 61 metre modules of the cargo building with similarly reduced aircraft truck and car parking, and the equipment building would require 13.5 ha (33.4 Ac) \pm , and each additional 61 metre module,

(150ft.)



EQUIPMENT
BUILDING

(150ft.)



CARGO AND OFFICES



TRACTOR TRAILER PARKING
AND MANEUVERING AREA



STAFF AND VISITORS
PARKING

POSSIBLE BUILDING
EXTENTS ON

(150ft.)

EXHIBIT 5-1
POSSIBLE INTERNATIONAL AIR
CARGO FACILITY
SCALE=1:2000

with related increased aircraft and truck areas would require 2.6 ha. (6.4 Ac) ±.

The key features of the terminal are:

- i) It is expandable based on a module 46m x 61m (150 ft x 200 ft). This module size of 2806 sq. m. (30,000 sq. ft.) is a workable unit based on construction capabilities (structural design and maximum clear span) as well as economics of scale and ability to handle the proposed use. It is expected that a minimum of two modules 5612 sq. m. (60,000 sq. ft.) would be required for a starter building and a full international air cargo terminal could require 4 or 5 modules 11,224-14030 sq. m. (120,000-150,000 sq. ft.).
- ii) Easy aircraft access is provided by a ramp design incorporating two points of contact with a taxiway allowing aircraft to enter and exit at different ends of the cargo ramp, avoiding delays and congestion when only one access point is provided from the taxiway to the ramp. The larger aircraft require more time for their push-back and engine start procedures and can effectively block a single access cargo ramp for some time.
- iii) Aircraft parking can be nose-in to integrated gates in the cargo building or at a less sophisticated level, nose-in or parallel parked and loaded/unloaded by mobile equipment

operating on the open ramp. The structure could be designed to provide for future conversion to full nose-in gates with all aircraft support and materials handling equipment built into the structure. Even the busiest of air cargo facilities would provide for only two or possibly three such nose-in gates with the remainder of the loading/unloading operations occurring on the ramp (at the new Vista cargo terminal at Pearson International Airport all loading/unloading occurs on the ramp using mobile equipment).

- iv) Provision should be made for the storage and maintenance of the mobile equipment that would support an air cargo terminal. Ideally this would be in a separate dedicated structure (garage) rather than in the actual air cargo terminal. Equipment such as ramp vehicles, tractors, scissor lifts, fork lifts, air carts, dollies, maintenance trucks and de-icing trucks would be accommodated in such a structure.
- v) The cargo terminal should provide, either as an integrated component or in an attached or nearby building, floor space to house a variety of office uses such as the management of the terminal, the users including air carriers, freight forwarders and couriers, brokers, inspection services of Canada Customs and Agriculture Canada, security personnel,

and employee facilities such as washrooms, change facilities, cafeteria and catering, aircrew rest areas, and aircrew flight planning and weather briefing facilities.

- vi) Also integral to the terminal facility should be specialized short term storage areas for cargo requiring warm storage (capable of maintaining a temperature between 18 and 22 degrees celsuis) for cargo such as baby chicks, a cool storage area (capable of maintaining a temperature between 2 and 5 degrees celsius) for cargo such as fresh foods and live lobsters, and a cold storage or freezer room (capable of maintaining a temperature below zero celsius) for frozen foods and medical supplies. In addition, it is suggested that a secure area (vault) be included for very high value cargo that may requuire short-term secure storage while in transit. The terminal should have a bonded area for imported goods that are awaiting customs clearance or are proceeding through in bond.
- vii) The groundside of the terminal must provide an adequate truck docking and manoeuvering area. Considering tractor-trailer units sixty feet in length, the dimensioning of the truck access area is important to ensure that there is sufficient room to have trucks docked at the Terminal, trucks parked awaiting loading or unloading and trucks moving in or out. Consideration should be given to a large

enough canopy over the truck docks to provide protection in poor weather conditions.

- viii) Consideration might be given to a separate, simple structure which could act as a staging area for livestock (cattle) that are shipped on dedicated freighter aircraft. This structure would be basically a warehouse/hangar/barn which would receive the animals, allow for their sorting and grouping into pens for loading and finally walk-on facilities for boarding the aircraft. Ideally the aircraft would be towed directly into the building (at least the nose of the aircraft) so that the animals can be walked up a ramp and directly on-board. This structure would house Agriculture Canada Inspection Services as well as the necessary health/veterinary services. These uses could probably be accommodated in a building the size of one of the modules suggested for the air cargo terminal (46m x 61m) or (150ft x 200ft - 30,000 sq.ft). The truck loading/unloading facilities would have to provide direct walk-off capabilities from the truck to the pen system where the animals are processed for shipment (inspected, weighed, grouped by weight etc).
- ix) Sufficient car parking must be provided for employees and visitors to the cargo terminal in a convenient, well marked

and well lighted location separated from the truck access area.

- x) Communications, i.e. tracing, expediting, inspection and customs clearances constitute major headaches for carriers and freight forwarders. That is to say that once it becomes necessary to retrieve and tie together information from a number of sources, breakdowns occur. A master electronic information system at the Hamilton Airport would be looked upon by forwarders and to a lesser extent by carriers as an incentive and inducement to use Hamilton. A central electronic control system that would provide all available information on carrier arrivals, departures, delays, air waybill numbers, customs clearance status, advice note and connecting ground carrier waybill, prebill or manifest number would springboard Hamilton to pre-eminence with major airports such as Narita and Atlanta.

Such an electronic communications system could take some of the sting out of the very real problem for forwarders of having to contemplate maintaining two facilities, one in Hamilton and one in Toronto.

- xi) Although it would be preferable for all ground handling to be done by one agency operating under authority of the

Airport, it might be necessary to consider letting airlines and forwarders use some of their own materials handling equipment. If so, for scissor jacks, fork lift trucks and vehicles, it is important that insurance coverage, (PL&PD) is in place on each and every piece of machinery at the airport. There are a number of major claims now being battled that could wind up in court due to lack of insurance.

It must be emphasized that the conceptual proposal for the air cargo terminal is meant to house a traditional air cargo facility, albeit with all of the latest innovations in materials handling equipment. It is not meant as an air courier hub building notwithstanding the fact that air couriers might rent space in this structure. It is expected that any air courier that wanted to set up a hub operation at Hamilton Airport would require a dedicated facility that could be as large as the entire conceptual proposal. Because of the peaking nature in their business activity during the night time hours, the floor area requirements, truck docking requirements and materials handling capabilities could exceed the requirements for the normal air cargo terminal. Land areas of a suitable size in close proximity to the taxiway system should be identified for potential use by the courier business.

5.5.3 Scenario 3 - Full Airside and Groundside Development

This third scenario addresses the follow-on to the previous option. It assumes that Hamilton will be positioned to attract the growing International market as well as the Domestic and Transborder. Besides assuming a larger annual volume of air cargo it assumes a broader range of goods shipped and received, and a much wider range of destinations and aircraft types served. It entails extensive modification to the airside facilities with the primary change being the extension of Runway 12L-30R from 8000 ft to 10,500 ft in order to accommodate virtually all aircraft types. This runway extension would allow non-stop flights to overseas destinations without any weight penalties.

Additional Airside improvements would be necessary to the taxiway system including construction of parallel taxiways to serve runways 06-24 and 12L-30R as well as high speed exit taxiways for the same runways, and the approach aids introducing CAT 11 capability, weather facilities and ATS facilities both operating 24 HOURS/DAY, in order to bring Hamilton Airport up to the same class of cargo facility as Toronto, Mirabel or Vancouver.

Groundside improvements would build on the conceptual air cargo facility that is the basis of Scenario 2. The level of facilities and area of the building could be improved by increments to respond to market demands for increased activity

and capacity and to provide facilities competitive with Pearson Airport, Mirabel Airport and American sites such as Detroit.

5.6 RELATIONSHIP OF IMPROVEMENTS TO ACTIVITY

It is important to note when reviewing the proposed facilities both in the last scenario and the previous one, that most of the major capital improvements on the airport do not relate to a certain incremental growth in aviation (air cargo and courier) activity. Rather the facilities provide for a certain threshold of activity. For example it will be very difficult to attract long-haul cargo flights to Hamilton until there is a longer runway. So it is somewhat unrealistic to discuss the incremental growth in International air cargo if the runway is incapable of handling the appropriate aircraft. Likewise the lack of any adequate air cargo terminal with modern facilities precludes a strong marketing drive for increased Domestic and Transborder traffic that could be handled by the current airside infrastructure. Assuming that Hamilton-Wentworth encourages the private sector to provide the basic groundside facilities of cargo terminal, office space, maintenance and servicing facilities it will be important to set minimum standards for the facilities and let the market determine the amount and type of space to be provided beyond the set minimums.

The recommendations in the next chapter have been made using this approach of thresholds of activity. The physical improvements to facilities are tied to servicing the different sectors of the market as well as to increased volumes of air cargo and air courier activity.

CHAPTER 6 - RECOMMENDATIONS

6.1 RECOMMENDATIONS ON THE POTENTIAL TO ATTRACT ADDITIONAL AIR CARGO AND COURIER SERVICES TO HAMILTON AIRPORT

The potential to attract additional air cargo and courier services to Hamilton is a function of the probable market available and the relative attractiveness of Hamilton Airport as compared with alternate sites. This attractiveness will be considered under three different scenarios relating to Hamilton Airport facilities.

6.1.1 Scenario 1

Maintains the status quo, that is it does not include any major facility improvements but relies on existing facilities, equipment and services. The two major positive attractions of Hamilton Airport, are:

1. 24 hour a day service with no night-time restrictions on cargo flights.
2. Runways and airside facilities able to handle virtually any aircraft normally operated on domestic and transborder cargo services. These aircraft would typically be able to serve most Domestic and Transborder destinations and would include aircraft up to the B727 class. Also these airside facilities

are operating well below capacity and have considerable capability for handling additional traffic.

The major shortcomings of Hamilton Airport as it is currently equipped and which would affect its relative attractiveness include the following:

1. A serious lack of any modern cargo terminal and hangar facility for servicing potential air cargo and courier business. There are however handling companies and mobile equipment capable of providing a level of service.
2. A maximum runway length of 8000 ft. which is inadequate to serve long-haul cargo aircraft.
3. The lack of suitable road access for commercial traffic proceeding to Hamilton Airport from the Highway 403 corridor would have to be considered as a serious constraint restricting the attractiveness of Hamilton Airport as a regional air cargo facility.
4. The remainder of the shortcomings could be grouped together under a common heading of facility constraints. These facilities could be physical ones such as the inadequate G/A taxiways and ramp area or services such as the lack of 24 hr a day ATS Tower operation and the lack of 24 hour customs.

Considering the advantages and disadvantages under the status quo situation of Scenario 1 there is still room to suggest that Hamilton would have a relative advantage to its major competition, primarily Pearson International Airport. This advantage revolves around the 24 hours a day access that cargo flights have, with no restrictions imposed during night time hours and no restrictions imposed during peak hours. This restriction-free operation is sufficient to back an active marketing campaign - particularly targeted at the air courier market that must have the freedom of access in order for their service to work. It is also important to remember that the air courier market is growing at a rate at least two times (2x) and possibly greater than the rate of growth of traditional air cargo. With the Toronto-Hamilton regional market providing the largest single courier market in Canada and the most likely location for a Canadian air courier hub for any (and all) of the courier companies such as Puralator, Federal Express and UPS it is appropriate to aggressively target that market for location at Hamilton Airport. The basic recommendation under Scenario 1 is that Hamilton Airport has an immediate and real advantage over the alternatives (particularly the constrained Pearson International Airport) to attract a large proportion of the growing air courier market. This advantage has to be recognized by the potential market and specific recommendations are provided later as to how to achieve this goal.

6.1.2 Scenario 2

Provides for the development of improved groundside facilities that are required to support improved air cargo facilities. It still assumes that the maximum runway length will not be modified and therefore tends to limit the growth to the Domestic and Transborder markets. This limitation tends to rule out many of the specialty or "niche" markets that Hamilton Airport might serve such as the Pacific Rim traffic supporting the auto-industry and long haul cargo flights accessing the major fruit, vegetable and livestock markets beyond Canada and the continental United States. However it still provides a basis for attracting a portion of the air cargo market that does not directly tie into the belly capacity of the Mainline Unit Toll carriers. The traffic tied into the Mainline Unit Toll carriers will continue to use Pearson International Airport as long as their passenger flights are routed through it. If some of this passenger flying were redirected to Hamilton because of growing congestion at Pearson International then it would bring the cargo capability with it.

There is also a certain amount of air cargo flying that is independent of the passenger flights and the courier business that is a prime market for Hamilton, assuming Hamilton had the ground facilities to service it. This air cargo traffic is not being provided with the level of airport service that it requires

at Pearson International Airport and is considered as marginal business at that location. (Consider that it must share less than 6% of all available landing/take-off slots with all charter, corporate and General Aviation traffic under the recently imposed capacity constraints, as well as the clearly annunciated priority of scheduled passenger flights). It is difficult to quantify the volume of this air cargo business because it is not reported in the general statistics issued by Transport Canada for air cargo in Canada, however it is present, operating a variety of aircraft well within the capabilities of Hamilton Airport, but requiring improved air cargo facilities to operate. It might be useful to identify key industries or shippers/receivers to target with marketing efforts to encourage the use of Hamilton Airport. This marketing could direct traffic out of Pearson International and other competing airports such as Detroit, Niagara Falls-New York, and Buffalo and into Hamilton. In this regard further specific study is warranted of the success of Detroit Willow-Run Airport in supporting over one-half the total air cargo for the entire State of Michigan and handling air cargo volumes well in excess of the much larger Detroit Metropolitan Wayne County Airport. The Detroit Willow-Run cargo success has been achieved independently of service from the regularly scheduled passenger airlines and offers direction to Hamilton Airport.

The air courier market would benefit considerably by the types of improvements suggested in Scenario 2. Although it is likely that

a full hub operation for a air courier company at Hamilton Airport would require an independent dedicated terminal facility, it is likely that the presence of a modern, well equipped air cargo facility would provide for an improved level of attraction compared to the current facilities being utilized at Hamilton Airport. This new facility would allow a courier an opportunity to establish at Hamilton with an acceptable level of service from ground facilities and allow the business to grow to a point where an independent facility could be justified.

The other improvements to the groundside facilities could include better road access to Hamilton Airport from Highway 403. This access is essential for the courier market.

6.1.3 Scenario 3

Involves a major commitment to improvements of airside and groundside facilities at Hamilton Airport. It would include all improvements contemplated in Scenario 2 along with airside improvements, the major one being a lengthening of Runway 12L-30R from 8000 feet to 10,500 feet. These changes would open Hamilton Airport up to the International Sector of air cargo particularly the so-called "specialty" or "niche" markets that are not supported by the Canadian Mainline Unit Toll carriers. The International sector of the air cargo market has been identified as the sector with the greatest potential for growth. This

growth is supported by the increasing levels of international trade and the development of multi-national companies (and industries such as automobile manufacturing). With Hamilton Airport being located in the industrial heart of Canada it has the locational attributes to support the growth in International air cargo. All it needs to capitalize on the opportunity are the facilities to accommodate the relevant aircraft types (namely the heavy jets such as DC8, B747 and DC10 freighters). Currently there are only three airports in Canada that are serious contenders for this type of market - Vancouver International Airport, Montreal-Mirabel Airport and Pearson International Airport. Vancouver serves the west coast market and does not offer much competition for the market Hamilton could attract. Montreal-Mirabel Airport has the facilities and the capacity to handle eastern Canadian air cargo but it suffers from a locational disadvantage to Hamilton by being too far from the major southern Ontario industrial complex. (Note: Montreal-Mirabel Airport in spite of its modern facilities is handling annually, only 1/3 of the air cargo volume that is passing through Pearson International Airport). Pearson International Airport is left as the only serious Canadian competition for the International market Hamilton Airport could serve. With Pearson International Airport seriously constrained in its capability to handle additional traffic other than scheduled passenger services, and with the strongest growth in air cargo projected for the International market due to the expansion of Pacific Rim

trade and increased trade with the EEC it is logical to consider improvements to Hamilton Airport that would permit it to compete.

This increased attractiveness of Hamilton Airport to the international air cargo cannot be improved incrementally when considering runway length constraints. There is a basic threshold that must be achieved before any appreciable international air cargo traffic will use Hamilton. So without the runway extension there is no attractiveness to Hamilton Airport for this sector of the air cargo market. With lengthened runway it would be possible for Hamilton to "level the playing field" and become competitive with Pearson International Airport. With this capability Hamilton Airport could easily be within the top 5 or 6 airports in Canada in air cargo volumes in a very short period of time (say 5 years after the improvements.)

6.2 RECOMMENDATIONS ON SPECIFIC FACILITIES AND SERVICES

A range of shortcomings have been identified in this study relating to the ability of Hamilton Airport to service the air cargo and courier business. The recommendations to overcome these shortcomings cover both facilities and services offered at Hamilton Airport on both the "airside" and the "groundside" of operations. Some of them are incremental and involve a level of improved attractiveness for a given level of capital improvement.

This would be the case for a new air cargo terminal. A basic, relatively simple, structure without nose-in gates for loading/unloading has a different level of attraction than a more complete facility with mechanized and automated equipment, that can handle efficiently, the short-turn-around times required of modern heavy jet transports. There are other facilities or services that cannot be discussed on an incremental basis. For instance it is unlikely that Hamilton Airport could attract an air courier terminal without 24 hour a day aircraft access and it is also unlikely that Hamilton Airport could attract any long-haul international air cargo without a longer runway.

The recommendations on facilities and services are set out according to the three scenarios previously discussed. There is an attempt to arrange the recommendations in a descending order of priority and to indicate, where possible, the relative cost effectiveness of each recommendation. It has not beeen possible in such a brief study to establish absolute specific cost estimates for each facility and these would have to be established in consultation with the appropriate actioning body. The involved parties could include private companies in the air cargo terminal business, Transport Canada, Ministry of Transportation-Province of Ontario, the Regional Municipality of Hamilton-Wentworth, local municipalities, federal government inspection services, air carriers and other companies associated with the air cargo and courier business.

6.2.1 Recommendations on Scenario 1

Maintaining the status quo, does not require additional construction or the provision of new services but rather the retention of current capabilities.

1. The single most important factor to the potential future success of Hamilton Airport is maintaining its capability to operate on a 24 hour a day basis. Without this capability it would be hard-pressed to attract additional air courier business that must have the night time access and it would lose a large part of its competitive advantage over other airports.

Although this recommendation comes under the status quo it does not imply that it involves no action. It is imperative that a positive program be pursued to ensure to the greatest extent possible, compatibility of the operation of the Hamilton Airport with surrounding land uses. This should include the continuing liaison with local municipalities as well as a clear definition of responsibilities for the maintenance of the noise abatement program. This program could include an effective monitoring capability as well as appropriate penalties for offending operators.

Hamilton Airport has made much progress in this area of noise abatement in the very recent past. It is important that these efforts be recognized as central to the success of the Airport and receive the highest level of support from all involved parties including the Regional Municipality, Hamilton Airport management, Transport Canada Air Traffic Services and of course, the actual aircraft operators.

2. The second recommendation under this level of development involves an active education/publicity campaign to ensure that the current capabilities of Hamilton Airport are understood and appreciated. The broader perspective of Hamilton Airport as a facility to serve the entire Southern Ontario market is necessary when promoting this facility.

This perspective will guide the promotion to a much broader potential group of users than a more locally based incentive would provide. Shipper/Receivers, industry groups or associations, transportation companies, airlines, charter operators, air courier companies and senior levels of government could be informed of the current benefits Hamilton Airport offers. A strong emphasis on its advantages such as 24 hour a day operation, no congestion, capability for expansion and ability to handle a broad range of aircraft would strengthen Hamilton Airport's attractiveness for air cargo and courier business. In other words, the market must

know about it, and understand what it can do right now, in order to appreciate its attractiveness.

6.2.2 Recommendations on Scenario 2

Providing basic groundside facilities are primarily focused on two areas, cargo terminal facilities and ground access. There is a broad range of ancillary facilities and services that are associated with an air cargo terminal that should be recognized, at least, in the planning of a new cargo terminal and actually included depending upon the need and the resources available.

1. The first recommendation is for a new "public" air cargo terminal/warehouse facility. The word public is used only in the sense that it is available to all users and not dedicated specifically to one air cargo or courier company. The terminal would not necessarily be run by the airport authority but could be run under contract by an appropriate commercial operation.

Although a specific architectural design is not suggested in this report, a conceptual design as illustrated on Exhibit 5-1 and explained in the text of Chapter 5, is provided.

2. Having set out the requirement for an air cargo terminal to serve all users of Hamilton Airport there is the distinct

probability that a specific air courier operator could desire an independent dedicated terminal for their exclusive use. This possibility is difficult to plan for other than identifying possible vacant parcels of land on the Airport which could provide such a capability. These parcels of land must be easily accessible to the taxiway system, possess good ground access potential, and be easily serviced with the necessary utilities and municipal services.

3. The last recommendation under this scenario is to secure a much improved ground access route from Highway 403 to the Airport. This route has been identified as the highest priority route necessary to support air cargo or courier activities.

6.2.3 Recommendations on Scenario 3

Relating to facilities and services, this scenario builds on the two previous scenarios and assumes that all of their recommendations have been activated. The basic thrust is to make Hamilton Airport competitive in all respects with other airports that are currently attracting the large volumes of air cargo and courier activity. These recommendations also open Hamilton Airport to all sectors of the market including the lucrative International sector by accommodating the larger long-haul cargo aircraft.

i) Top priority to provide entry into the market penetration of Scenario 3 is a longer runway. Runway 12L-30R, which is shown in the Airport Land Use Plan as being recommended for possible future extensions, (or at least the land be protected for runway extension to 10,500 feet), should be lengthened to accommodate the larger aircraft that service the more distant market. The current runway of 8,000 feet can and has, accommodated aircraft up to L1011 size, but it could not be used for regular non-stop flights at maximum payload to overseas markets. This is one of those improvements that involves a threshold of activity rather than a marginal or incremental gain. Without the lengthened runway there is not much point in pursuing these air cargo markets because of practicalities of the aircraft requirements. The expenditure required for this runway extension is probably the single biggest amount anticipated in terms of capital expenditures on airside facilities. However, if it is put into the perspective of some of the solutions being considered for the current airside congestion at Pearson International Airport, this runway extension is a relatively cost effective move for Transport Canada in providing alternate airside capacity to the Toronto-Hamilton area.

- ii) The second priority would be related to the operation of the ATS Tower facility at Hamilton Airport. 24 hour a day service is desirable to provide the level of service and safety expected by air carriers throughout the world at major airports. Although this extension of hours of operations runs counter to the trend of cut-backs in public services and operating budgets, it would reinforce the operation of Hamilton Airport as a full service air cargo facility attracting non-Canadian air carriers from the United States and overseas.
- iii) Again relating to the airside of the airport, improved approach aid facilities, to provide better all-weather capabilities would upgrade the Hamilton Airport to a standard comparable with airports currently attracting the air cargo business of the International market.
- iv) The ground circulation of aircraft at Hamilton Airport should be upgraded to improved standards. The current configuration of taxiways, requiring backtracking on the runways to position for take-off would quickly create unnecessary delays and congestion if a larger proportion of the traffic required the full length of the runway for take-off. The taxiways should be built to the end of the runways and incorporate holding bays to accommodate aircraft awaiting take-off.

- v) Weather observation, reporting and briefing facilities should be made available on a 24 hour basis to improve the safety and reliability of night time operations.
- vi) Customs inspection and clearance facilities should be located at the air cargo terminal and operated 24 hours a day. This is a necessary service to support any volume of trans-border traffic whether it be cargo or courier.
- vii) If the Hamilton Airport is to become a full service cargo facility, consideration should be given to reviewing the terminal facilities provided for in Scenario 2 to ensure that they are sufficiently large to meet the needs of the expanded market served at this level. Particular attention should be focused on the requirements of the larger aircraft that could be attracted by the expanded airside facilities.

Specialized facilities designed to handle livestock shipments are a possibility of this Scenario. The details of such a structure are set out in Chapter 5.

Additional facilities required for long term storage could be incorporated in any extensions to the air cargo terminal at this stage. However the economics of

this space are such that it is better utilized for the normal short term (under 72 hours) holding time of cargo in transit. Less expensive warehouse space can be provided in the Airport Industrial - Business Park to support the air cargo operation. This space should be provided by the normal market system. There should be land area set aside in the Industrial -Business Park for such uses.

In a more mature air cargo operation there will be support services required including; specialized maintenance, catering, materials handling, packaging, local delivery services, import - export assistance and professional and technical support services. These uses will also require a variety of floor space in or near the cargo terminal. Again some of them will prefer the less expensive space in the nearby Industrial - Business Park rather than being on-site in the terminal. Also some of these services may be duplications of existing services but will be provided now on a 24 hour a day basis in support of the all night cargo/courier activity.

- viii) A specific improvement that will be required as the level of aviation and business activity increases at Hamilton Airport is upgraded security. Although

current security is characterized as adequate, it will require a thorough review and upgrading. In addition to ensuring the normal security required for access to the airside of the airport, the cargo terminal itself requires very stringent security measures controlling access to only authorized persons and guaranteeing the secure handling, shipping, receiving and storage of goods. Increased activity in Trans-Border and International flights involving bonded goods further heightens the need for security.

Any modern air cargo terminal will address this issue as an integral part of the design. However the planning and approving authority must be aware of the requirement for security during their review of any proposed cargo facilities for the airport.

- ix) Assuming road access issues have been adequately addressed at Scenario 2 level, the only remaining access issue would be public transit. Basic service is in place right now and extended service will only be required as the need develops. However since the Airport is in a relatively remote location to residential development and since the air cargo/courier operation could provide considerable employment during night time hours, a special public transit service

coordinated with airport employee requirements should be planned.

- x) The last recommendation for this section is related to charges for facilities and services. Although cost recovery and cost benefit analyses are important to ensure that the air cargo terminal is paying its way. it is also important that the charges on air cargo and courier operations are competitive with other airports such as Pearson and Niagara Falls-New York. For instance it is understood that the current fuel price at Hamilton Airport is a definite disincentive. The reasons and need for this higher cost should be reviewed and corrections made, where possible, to ensure that cost of services does not keep air cargo and courier business moving through other airports.

6.3 RECOMMENDATIONS FOR ACTIONS REQUIRED BY VARIOUS PUBLIC BODIES

This section addresses specific actions required by public bodies such as the Regional Municipality of Hamilton-Wentworth, Transport Canada, The Province of Ontario, Canada Customs, Agriculture Canada Inspection Services and others. This section is not meant to be an exhaustive policy guideline but more a checklist of actions required to support the development of air cargo and courier activities at Hamilton Airport in accordance

with the three Scenarios presented in this Study.

6.3.1 Scenario 1 - Action Required by Public Bodies

- i) There must be a proactive planning and educational program organized by the Regional Municipality of Hamilton-Wentworth, as the authority responsible for the operation of the Airport.
- ii) The program to ensure continuation of 24 hour a day operation has been commenced already and must be vigorously pursued.
- iii) A noise abatement monitoring program must be put in place along with a method of policing it.
- iv) If necessary a program of noise performance standards may have to be instituted to avoid adverse community reaction to increased night time airport activities.
- v) The Region must assume an active role in the coordination and dissemination of marketing information. Preferably a senior person in the administration would be given this responsibility (or a new position created to undertake the work - it could

be a specific term contract position) reporting to Council.

- vi) This person responsible for marketing the Airport should be assisted by an Advisory Board of interested and qualified individuals who could provide advice and direction in establishing policies and priorities for marketing of the air cargo/air courier potential of Hamilton Airport.
- vii) The marketing activities could be directed towards encouraging specific air cargo or courier companies to locate at Hamilton Airport and also to identify shippers and receivers who could benefit from their goods being shipped via Hamilton Airport.
- viii) The targets of this marketing effort could include:
 - Canada Post
 - Auto industry
 - Fresh food and produce market
 - Livestock exporters
 - exporters/importers of high value goods such as electronics, computers, and office equipment.

ix) The marketing efforts can be as specific as necessary as long they are coordinated from one office and proceed with an overall marketing strategy.

6.3.2 Scenario 2 - Action Required by Public Bodies

- i) The Regional Municipality must take the lead role in establishing the desired goal and preparing the plan to achieve it. This lead role does not necessarily mean taking financial responsibility for the new cargo facility but rather causing it to come about under appropriate arrangements, such as an agreement with a commercial company to build and operate the facility for a given period of time under certain conditions, with the entire installation reverting to Regional Municipality ownership at some date in the future.
- ii) Transport Canada must be involved to ensure that all of the technical items related to their airside concerns are planned in accordance with their standards.
- iii) The inspection services of Canada Customs and Agriculture Canada should be involved at a very early stage, to provide the details of their own facilities that should be an integral part of the cargo terminal.

- iv) Local municipalities, utilities and the Region would be required to cooperate on the planning of the necessary service extensions to the air cargo site on the airport.
- v) Support might be possible from the appropriate industrial development agencies at the Province of Ontario and at the federal government for the establishment of such a facility, particularly if it was promoted as a generator of other commercial activities and employment.
- vi) The Province of Ontario, Ministry of Transportation should be involved at a very early stage to provide assistance with access roads, particularly the link between Highway 403 and the Airport. The link could be part of the planned Highway 6 realignment which has an exit at Airport Road immediately south of the Air Terminal entrance. The Region will have to make a strong case for the improvement in order to have the priority of this project brought forward for early construction.
- vii) The Regional Municipality will have to continue with a very aggressive marketing effort. The installation of new cargo facilities will not, of itself, attract

new cargo and courier activity to Hamilton Airport.. A cooperative approach involving the operation of the new facility (be that a private commerical company or an agency of the airport authority) will be required to ensure that the air cargo/courier markets are informed and knowledgeable about the new facilities and services offered at Hamilton Airport as well as the advantages of this location.

6.3.3 Scenario 3 - Action Required by Public Bodies

- i) This scenario starts with the assumption that all necessary actions required for the previous two scenarios have been fulfilled, so that these current steps will build on the earlier work.
- ii) Once again the Regional Municipality will have to take the lead role initiating any commitment to plan for upgraded airport facilities to attract the full range of air cargo and courier business including the long-haul International sector.
- iii) The Regional Municipality will have to set up early and continuing liaison with Transport Canada to solicit their assistance and cooperation on the required airport improvements, particularly a longer runway for overseas

flights. This longer runway will require a land acquisition program as well as zoning protection in the form of an amendment to the Registered Zoning that is currently in place at the airport.

- iv) It is expected that prior to meaningful progress by staff at the Region and at Transport Canada on this expansion plan, senior elected officials of the Regional Municipality of Hamilton-Wentworth will have to make representations to the federal government in order to have this project receive the appropriate priority and support.
- v) Transport Canada would be responsible for the actual lengthening of the runway, as well as the upgrading of taxiways, ramp areas and other airside facilities and services.
- vi) Atmospheric Environment Service (AES) would be responsible for improved weather facilities with 24 hour/day service at Hamilton Airport.
- vii) Canada Customs and Agriculture Canada would be responsible for improved inspection services for air cargo including 24 hour/day coverage.

- viii) The Regional Municipality should continue the marketing program for Hamilton Airport actively promoting the improved facilities for air cargo for all sectors of the market including the International sector. This step would require the broadening of the marketing program so as to reach potential users in the long-haul overseas market. The marketing would have to develop a presence for Hamilton Airport that lifted it out of a regional role and into an international role.
- ix) It would also be appropriate to market not only the improved cargo facilities but also the additional airside capacity that would be introduced into the Toronto-Hamilton area by the airport improvements involved in this scenario. The increased airside capacity which is a secondary benefit to Hamilton-Wentworth when compared to the increased air cargo/courier capability, may in fact, become the primary benefit when reviewed by senior levels of government.
- x) This final scenario will require cooperation between regional and provincial authorities to ensure that ground access to the airport meets the expanded needs. This access includes the provision of public transit as well as improved roads.

xi) Hamilton-Wentworth will have to initiate a comprehensive review of the cost of services provided to the air cargo and air courier market to ensure that Hamilton Airport is competitive in costs as well as in facilities.

6.4 SUMMARY

It is clear that a program to increase the attractiveness of Hamilton Airport for air cargo and courier services offers many options and involves many governmental bodies. But the initial step must be taken by Hamilton-Wentworth to set the objective of increased air cargo and courier services at Hamilton Airport and then to pursue it. Exhibit 6-1 provides a summary of the recommendations included in this study.

Although this study offers various options through the use of different scenarios relating to increased air cargo and courier activity there is realistically less choice available. The actions required under Scenario I should be considered as a mandatory minimum, and they are aimed primarily at maintaining the status quo and ensuring continued full operation of the Airport. The decision on whether to proceed with a strategy restricted to the Domestic and Transborder sectors of the market as in Scenario 2 or a more aggressive strategy of Scenario 3 that encompasses the full air cargo market including the International sector should not be difficult. The International sector of air cargo is forecast to out-perform the other two sectors. The industries and products driving this International sector are important to south-central Ontario. Hamilton Airport could be expanded to provide for a runway adequate to handle the long-haul jet aircraft that predominate in the International

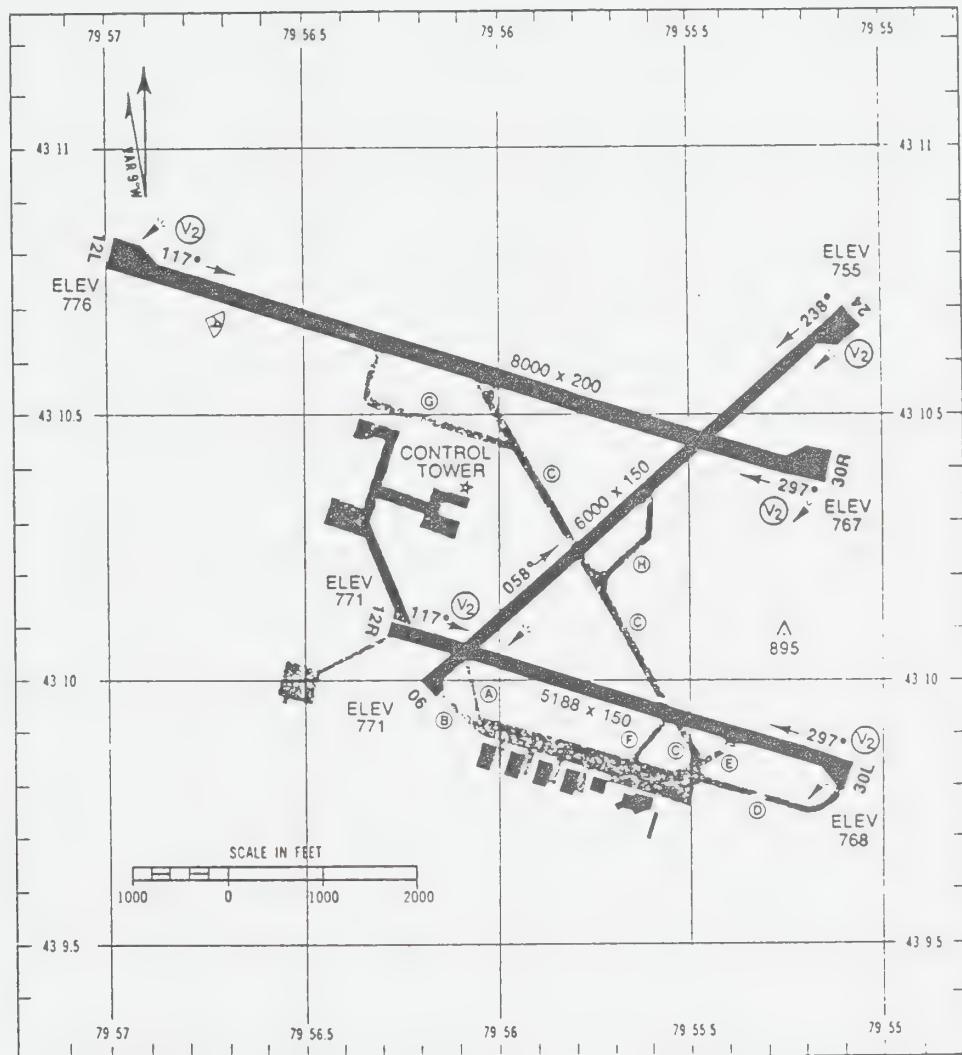
sector. Lastly this proposed strategy is being reviewed at a time of concern about shortage of airside capacity in this area.

Considering the probable time span to plan, approve and implement the necessary facilities at Hamilton Airport, it is recommended that this procedure be initiated immediately. The Regional Municipality of Hamilton-Wentworth should support the development of a full-service facility for air cargo and courier operation including lengthened runway and the necessary airside improvements. This commitment would position Hamilton to offer a full range of air cargo services serving all market sectors and at the same time reduce the regional airside capacity constraints. These constraints are serious enough, that if not addressed, they could contribute to a re-direction of at least a portion of the projected growth in air cargo away from southern Ontario to either American airports or to Montreal-Mirabel Airport. The lost opportunities would have an economic impact well beyond the immediate area of Hamilton Airport.

APPENDIX 1 - DESCRIPTION OF HAMILTON AIRPORT

HAMILTON AIRPORT

Aerodrome Chart



Location: $43^{\circ} 10' 19''$ North

$78^{\circ} 55' 54''$ West

Elevation: 780 ft. a.m.s.l

Operator: Regional Municipality of Hamilton - Wentworth

Customs: Authorized Canada Customs airport of entry and exit for clearance of air traffic carrying freight or a passenger load not exceeding 110 persons from 0700 to 2300 hrs local time prior notice required. Call out charge if services required outside above hours.

Flight Planning: Flight plans to be filed through Toronto/Buttonville Flight Service Station 1-800-263-1677.

Weather Briefing available (416) 524-2035 from 0600 to 2100 hours local time only. Other times through Flight Service Station.

Aircraft Services: Fuel, Avgas 80-87 and 100-130 Turbine JET A-1, oil 65, 80, 100 and 120, storage and major repairs, maximum door height, de-icing spray vehicle, crash fire fighting and rescue service for aircraft up to 24 metres in length 0700-2300 hrs. local time. Other times prior notice required - (call out charge)

Runways: 06-24 6000'x150' asphalt
 12R-30L 5188'x150' asphalt
 12L-30R 8000'x200' asphalt

Lighting:	Runway 06	- Low intensity approach lighting with sequenced flashing strobe lights
		- Medium intensity runway edge lights
	Runway 12R	- 2-BAR visual approach slope indicator system (VASIS)
	Runway 12L	- High intensity approach lighting with runway identification lights (flashing strobe lights)
		- High intensity runway lights with threshold and Runway End lights.
		- 2 - BAR visual approach slope indication system (VASIS)
	Runway 24	- Runway identification lights (flashing strobe lights).
		- Medium intensity runway edge lights
		- 2 -BAR visual approach slope indicator system (VASIS)
	Runway 30R	- Low intensity approach lighting with runway identification lights (flashing strobe lights)

- High intensity runway lights with threshold and Runway end lights
 - 2 BAR visual approach slope indicator system (VASIS)
- Runway 30L - 2 BAR visual approach slope indicator system (VASIS)
- Taxiway and apron lighting with the exception of Taxiway "A" which is unlighted.

Communications: Tower has very high frequency (VHF) and ultra high frequency (UHF) control frequencies for both air and ground control, and separate VHF frequencies for direction finding service. Airport terminal information service (ATIS) broadcast upon a separate VHF frequency. All services available only from 0700 to 2300 hrs. local time. At other times contact can be made on one VHF and one UHF frequency with Toronto Air Traffic Centre.

Navigation: Runways 06 and 12L are served by instrument landing systems complete with Non-Directional Beacons (NDB) and Outer Markers. Runway 06 is also equipped with a Middle Marker. Runways 24 and 30R are served by ILS back course approaches which do not include a

glide slope transmitter. Runway 30R is served by an NDB. The approach fix for Runway 24 is a VOR radial from ASH VOR.

Noise Abatement: There are published arrival and departure procedures, and restrictions on use of certain runways during the hours 2300 to 0700 hours local time. Training flights can be conducted between 2300 to 0700 only with the authorization of the Airport Manager.

Current Aviation Activity

During the most recent year for which complete data is available (1987) the airport's total activity is listed as Total Movements 135,593 made up of 41,700 itinerant and 93,893 local movements. Of the itinerant movements some 8486 were under Instrument Flight rules. Typical summer activity is indicated by the August 1988 statistics.

Total Movements	11,721
Itinerant	4,389
Local	7,332

with 1191 IFR movements.

Municipal Services - Water

Water is supplied to the airport via a Township of Glanbrook watermain. Study of the adequacy of the present system is in progress.

Sewers

There are three separate sewage systems on the airport. The Terminal area and the (Control Tower) infield area are served by separate independent systems which are both relatively new and considered adequate for the near future.

The General Aviation Area is served by a separate independent system which is some 45 years old and in poor repair. Any development in this area will require extensive upgrading or replacement of this system.

Bus and Taxi Services

Two bus services are provided to the airport by Canada Coach Lines. One service links the airport with the Central Business District six times daily. The other links the airport with Lester B. Pearson International Airport and the Royal York Hotel in Toronto four times daily.

Mount Hope Taxi provides taxi service to the airport in response to telephone requests.

Commercial Services

The Air Terminal building is the site of a coffee shop and bar, and a duty free shop which also handles confectionery items, magazines etc.

Four rental car companies provide service in the air terminal building. Cars are provided from main offices in downtown Hamilton as required.

APPENDIX 2 - LIST OF CONTACTS

GROUP 1

Air Canada

MAJOR AIR CARRIERS

Mr. Bob Burnett
Director of Cargo Sales - Canada
(416) 676-4757

Mr. Dave Taylor
Senior Director - Cargo
(514) 879-7783

Air France

Ms. Lise Marie Turpin
Cargo Manager
(416) 676-3297

Canadian Airlines
International

Mr. Robert W.R. Shaw
Regional Cargo Sales/Service Mgr.
(416) 675-8270

Japan Airlines

Mr. W.K. McAlpine
Cargo Sales Manager
(416) 678-7313

Korean Air

Mr. R.J McGowan
Manager Eastern Canada
(416) 672-7473

Lufthansa

Mr. Gunter Schnier
Manager Cargo Operations
(416) 677-6990

Thai Airways International

Mr. David Martin
Cargo Manager
(416) 971-5181

Varig Brazilian Airlines

Mr. Jim Mulhall
Cargo Sales Manager
(416) 926-7511

GROUP 2

Emery Worldwide	Mr. Gary G. Kennedy Vice President - Canadian Sector (416) 678-6370
Federal Express	Mr. Kevin Ackroyd Manager - Ramp Operations Toronto (416) 676-4000
Purolator Canada	Mr. Bill Mazhar Director of Air Operations (416) 624-5454
United Parcel Service (UPS)	Mr. Simon Messina (416) 679-3342
	Mr. Grant Parzych District Air Manager (416) 736-3800

GROUP 3

<u>LOCAL COURIER/CHARTER CARRIERS AND REGIONAL CARRIERS</u>	
Chautaugua Airlines	Mr. D. J. Ostrum (416) 679-3323
Jetall	Mr. Aire Tall President (416) 672-3300
Kelowna Flightcraft	Mr. B. Lapointe President (604) 765-1437
Millard Air	Mr. Carl Millard President (416) 677-2521
Ontario Express	Mr. Ron Patmore President (416) 675-8310
Pan Am Express	Mr. Robert Robertson (416) 679-3211
Peninsulair Limited	Mr. Glen White President (416) 679-4165

GROUP 3 - Continued

LOCAL COURIER/CHARTER CARRIERS AND
REGIONAL CARRIERS

Skycharter Ltd.

Mr. R. Shoichet
Base Manager
(416) 677-6901

Soundair Corporation

Mr. B. Child
President
(416) 678-7717

Tempus Air Ltd.

Mr. Ken Gregg
Manager
(416) 679-3366

GROUP 4

RELATED TRANSPORTATION COMPANIES
AND AGENCIES

Able Forwarding Company

Mr. R. Gulvin
President
(416) 252-7321

Atlantis Transportation
Services Inc.

Mr. Robert A. Thorndyke
Vice President
(416) 677-5171

Atripco-Weber Delivery
Services Ltd.

Mr. Lloyd Service
Vice President
(519) 749-1201

Kuehne and Nagel
International Ltd.

Mr. Thomas Olesch
Vice President Air Freight
(416) 673-8075

L.H.R. Transportation
Services Limited

Mr. Larry Rayner
President
(416) 677-2622

LEP International Inc.

Mr. Ray de Rose
Air Freight Manager
(416) 677-2134

Meadows Air Freight Canada

Mr. Nick Weber
Executive Vice President
(416) 366-9241

Mitchell Air Cargo Services

Mr. Gord Mitchell
President
(519) 663-2122

GROUP 4 - Continued

Right O-way Canada

RELATED TRANSPORTATION COMPANIES
AND AGENCIES

Mr. John Picken
Vice President International
(416) 238-0115

GROUP 5

Canadian Manufacturers
Association

INDUSTRIAL SHIPPERS/RECEIVERS

Mr. Don Wiersma
Transportation Manager
(416) 363-7261

CIBA-GIEGY Canada Ltd.

Mr. John Blakely
Corporate Transportation Manager
(416) 821-4420

Chrysler Canada Ltd.

Mr. Wayne Mackinnon
Depot Manager-National Parts Depot
(416) 821-6000

Ford Motor Company
of Canada Ltd.

Mr. J.K. Hord
National Traffic Manager
Mr. Ed Peaire
National Traffic Supervisor
(416) 459-2210

Mr. Sam Laverty
Oakville Assembly Plant 7
Parts Control & Traffic Supervisor
(416) 845-2881

Northern Telecom Canada Ltd.

Mr. Ernie Barber
(416) 232-2000

Toyota Canada Inc.

Mr. Pat L. McGee
National Parts Dept. Traffic &
Customs
(416) 438-6320

GROUP 6

Agriculture Canada

GOVERNMENT AGENCIES

Dr. W.H.J. Davis
Veterinary Inspection Directorate
(416) 226-9262

Canada Customs

Mr. Peter Stanbury
Manager of Operational Services
Hamilton Region
(416) 572-2891

GROUP 6 - Continued

GOVERNMENT AGENCIES

Canada Post Corporation

Mr. Dan Coldwell
Contract Negotiation Officer
(416) 973-5757

Transport Canada

Mr. D. Swanson
General Manager
National Operations Control
(613) 998-8440

Forecasting Office Ottawa
Mr. R. Duclos
Mr. Eric Mainville
(613) 990-3830

Regional Office - Toronto
Mr. R. Binnie
Regional Director - Airports
and Properties
(416) 224-3197

Mr. Bill Newman
Regional Manager Commerical
Development
(416) 224-3411

GROUP 7

HAMILTON AIRPORT CONTACTS

Glanford Avaition
Services Ltd.

Mr. Bill Marsh
Manager
(416) 679-4127

Hamilton Airport

Mr. Peter Ainsworth
Airport Manager
(416) 679-4151

Hamilton Air Services Ltd.

Mr. Kevin Roffe
Manager
(416) 522-8866

Hamilton Flying Club

Mr. Reg Spence
General Manager
(416) 679-6044

Intact Terminals 1987 Ltd.

Mr. Jim Dawson
Manager International Air Cargo
Terminals
(416) 679-6120

Transport Canada

Mr. Tim Holmes
Manager - Air Traffic Services
(416) 679-6116

APPENDIX - 4

HAMILTON AIRPORT
AIR CARGO AND COURIER POTENTIAL STUDY
BRIEF SUMMARY OF PRODUCTS
FORBIDDEN OR RESTRICTED FOR AIR TRANSPORT

<u>Product</u>	<u>Passenger Aircraft</u>	<u>Cargo Aircraft</u>
Acetylene (liquefied)	Forbidden	Restricted
Acids	Forbidden	Restricted
Adhesives	Restricted	-
Aerosols, depending upon contents	Forbidden or Restricted	
Antifreeze	Restricted	Restricted
Batteries	Restricted	-
Compressed Gases	Forbidden or Restricted	
Cosmetics	Restricted	Restricted
Dangerous When Wet products	Forbidden	Restricted
Disinfectants	Restricted	Restricted
Drugs	Restricted	Restricted
Dyes	Restricted	Restricted
Flammable Liquids, Poisonous	Forbidden	Restricted
Infectious Substances	Restricted	Restricted
Insecticide Gases	Forbidden or Restricted	
Lighters	Restricted	Restricted
Liquefied Gases	Forbidden or Restricted	
Matches	Forbidden or Restricted	
Medicines	Restricted	Restricted
Nitrocellulose, depending upon content	Forbidden or Restricted	
Oxygen	Forbidden or Restricted	

Forbidden and Restricted Products for Air Transport...Cont'd.
Page 2

<u>Product</u>	<u>Passenger Aircraft</u>	<u>Cargo Aircraft</u>
Paints	Restricted	Restricted
Pesticides, depending upon content		Forbidden or Restricted
Poisonous Liquids	Restricted	Restricted
Poisonous Solids	Restricted	Restricted
Radioactive Material, depending upon radioactivity		Forbidden or Restricted
Self-Reactive Substances	Forbidden	Forbidden
Tear Gas Devices	Forbidden	Restricted
Xylenes	Restricted	Restricted

It is estimated that in excess of 300,000 products or substances are either forbidden or restricted as cargo on aircraft.

APPENDIX 5 - REFERENCE MATERIAL

PERIODICALS

Various issues of the following periodicals were used.

Aviation Week and Space Technology

Cargo Express

Canadian Aviation

Interavia

Airtrade

Air Cargo World

Wings

Aircargo News International

AVIATION DIRECTORIES

1988 Aviation Directory of Canada

Aviation Week and Space Technology, March 14, 1988
Aerospace Forecast & Inventory

Airport Technology International 1988

REPORTS/STUDIES

Michigan Air Carrier Airport Statistics, 1982-1986, May 1987
Public Transportation in Michigan

Passenger Transportation of Transportation

Michigan Department of Transportation

Aviation Aggregate Demand Indicators (Spring 1988)
Economic Analysis, Transport Canada

Transport Canada Aviation Forecasts, 1988 - 2001
Aviation 88, TP 7960E

Study of Air Cargo Operations at Lester B. Pearson
International Airport, April 1986
prepared for Department of Transport by
Marshall Macklin Monaghan Limited

REPORTS/STUDIES - Continued

Aerodrome Standards and Recommended Practices, 3rd Edition,
August 1984

Transport Canada, TP 312E

Aerodrome, Eighth Edition - March 1983

International Standards and Practices, Annex 14
to the Convention on International Civil Aviation
International Civil Aviation Organization

Hamilton-Toronto Airports Utilization Study

Final Report Draft

Transport Canada, 1985

Transport Canada response to Regional Council
Recommendations on Hamilton Airport noise and Overflying
Concerns

Memorandum to the Chairman and Members, Special Airport
Committee, December 5, 1988

Research and Sales Strategies to Attract Tour Wholesale
Operators to Hamilton Airport, July 1987

prepared for Transport Canada and the Regional
Municipality of Hamilton-Wentworth
by Earl B. Smith Travel Marketing Consultants

The Airport Industrial Business Park Location Study
September 1984

Planning and Development Department
Regional Municipality of Hamilton-Wentworth

Hamilton Airport/Airport Industrial - Business Park
Inventory of Existing and Proposed Facilities
October 1988

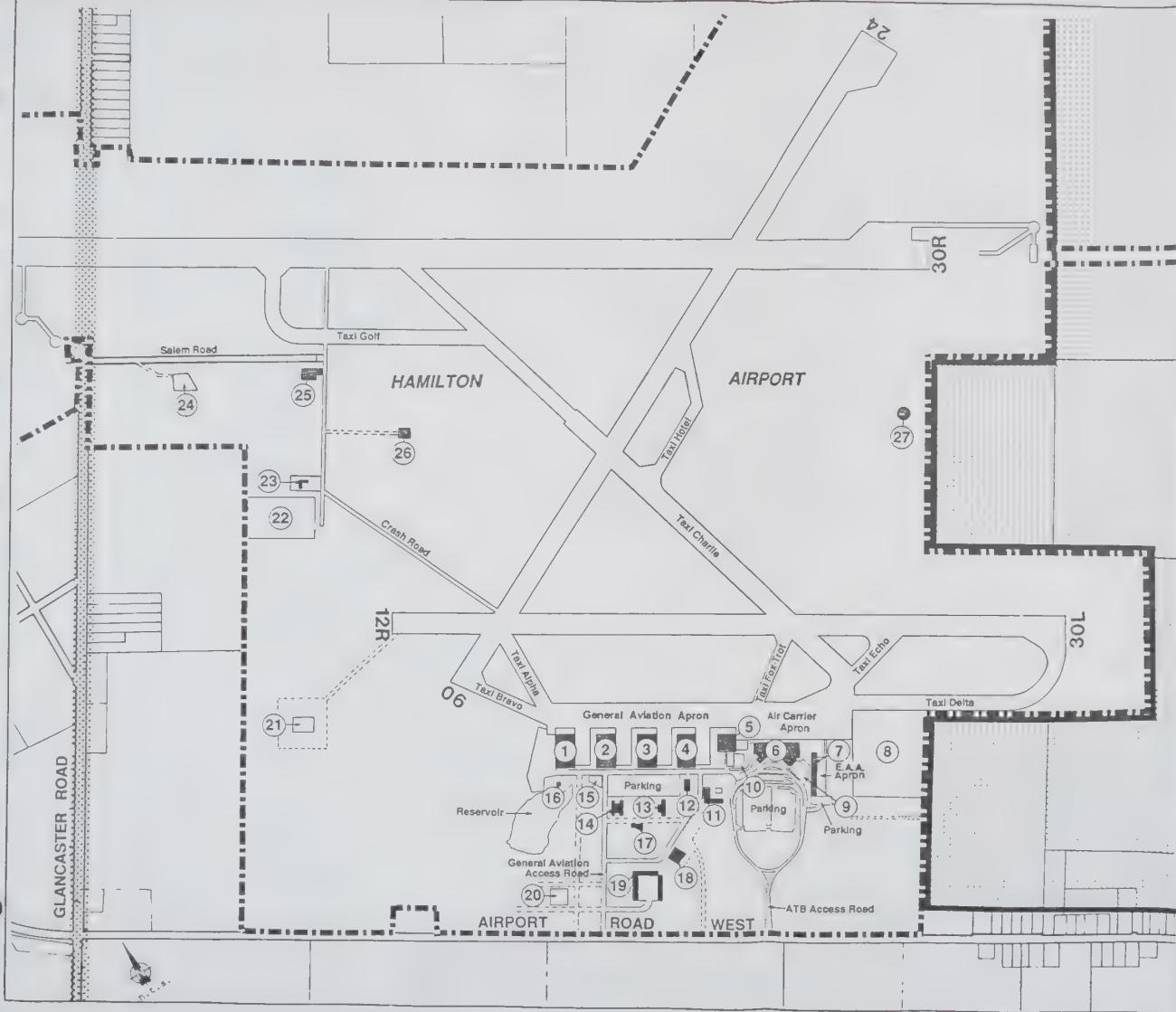
Regional Planning Branch, Hamilton-Wentworth
Planning and Development Department

Toronto to Hamilton Diversion Study
MacAvia 1985

General Aviation Area Development Concepts
R.E. Winter 1987

Airport Land Use Plan - Hamilton Airport
Transport Canada - TP-8700E - September 1987

Hamilton Airport Air Terminal and General Aviation Area (Enlargement)



Legend

- 1 Hangar 1 (Hamilton Flying Club)
 - 2 Hangar 2 (Peninsular)
 - 3 Hangar 3 (Canadian Warplane Heritage, Inc.)
 - 4 Hangar 4 (Canadian Warplane Heritage, Inc.)
 - 5 Hangar 5 (Glanford Aviation)
 - 6 Air Terminal Building
 - 7 Hangar 6 (Experimental Aircraft Association)
 - 8 INTACT Aviation Service Ltd.
(Committed Development)
 - 9 Rental Car Parking Lot
 - 10 Employee Parking
 - 11 Storage
 - 12 Cargo Building (Emery Courier; MH Cartage)
 - 13 Offices (Air Force Association)
 - 14 Offices (779 Cadet Air Squadron;
Hamilton Firefighters Drum Corps)
 - 15 Hamilton Air Services, Inc. (Committed Development)
 - 16 Single Family Residence
 - 17 Storage
 - 18 Offices and Recreation (RCAF 447 Wing Club)
 - 19 Maintenance Garage and Storage
 - 20 Fuel Storage
 - 21 Fire Training Area
 - 22 Hamilton-Wentworth Regional Police Force
Dog Training Facility (Committed Development)
 - 23 Firehall
 - 24 Cemetery
 - 25 Field Electrical Centre
 - 26 Air Traffic Control Centre
 - 27 Radar
- Airport Boundary
··· Industrial Business Park
··· Municipal Boundary

SOURCE:
**HAMILTON AIRPORT / AIRPORT
INDUSTRIAL BUSINESS PARK
STRATEGIC PLAN**

APPENDIX 6 - GLOSSARY OF TERMS

Air Carrier

For purposes of classifying aircraft movements at an airport with an air-traffic-control tower or a flight service station, the term "air carrier" applies to:

- (i) any aircraft operator having an official designator code (International Civil Aviation Organization or Transport Canada) and conducting services under authority of a Class 1, 2, 8 or 9-2 licence, regardless of aircraft weight; and
- (ii) any carrier having an official designator code and conducting services under authority of a Class 8, 9-8, 4 or 9-4 licence with an aircraft having a gross take-off weight greater than 5670 kg (12,500 lb).

Airport Authority - The operator and/or manager of the airport, in this case the Regional Municipality of Hamilton-Wentworth.

Airside - The subsystem of an airport which provides the means for the operation and maintenance of aircraft. It includes such facilities as runways, taxiways, gates, aprons, aircraft holding areas, aircraft servicing and maintenance areas and the air traffic control system.

Control Tower - A structure containing facilities for the control of airport traffic, including the movement of aircraft, vehicles and pedestrians on the manoeuvering area, as well as aircraft in flight. This structure may be associated with an air terminal building or an operational building or it may be a free standing structure.

Critical Aircraft - The aircraft whose characteristics determine the design of an aerodome.

Deplaned Passengers/Cargo

The total revenue passengers or revenue cargo off-loaded from an aircraft at an airport. The term therefore applies to connecting traffic (interline and intraline transfers) as well as to that terminating at the airport.

Domestic Traffic

Air services from one point in Canada to another point in Canada.

Enplaned Passengers/Cargo

The total revenue passengers or revenue cargo put onto an aircraft at an airport. This term therefore applies to

connecting traffic (interline and intraline transfers) as well as to that originating at the airport.

Freight Forwarder

A company providing services in relation to the movement of cargo/freight from a source such as a manufacturing plant to a destination such as a distributor. The freight forwarder would coordinate all arrangements for the actual movement of the goods including trans - shipment arrangements where the goods move from surface shipment (by truck) to air shipment and back to surface shipment. For the air portion of the shipment the freight forwarders would normally purchase cargo space from a commercial air carrier which could be, in the belly of a passenger aircraft, space on a cargo aircraft, or else an entire, dedicated, aircraft. A freight forwarder is able usually to negotiate bulk rate for this cargo space because of the large regular volumes that they book.

General-Aviation

Aircraft movements not classified as Air Carrier are considered general-aviation (GA). GA is the total of Other Commercial, Private and Government (civil and military) movements.

Groundside - The subsystem of an airport which provides the means of interchange, for both passengers and goods, between ground transport and air transport. It includes such facilities as terminal buildings, parking areas and structures and the road system on the airport property.

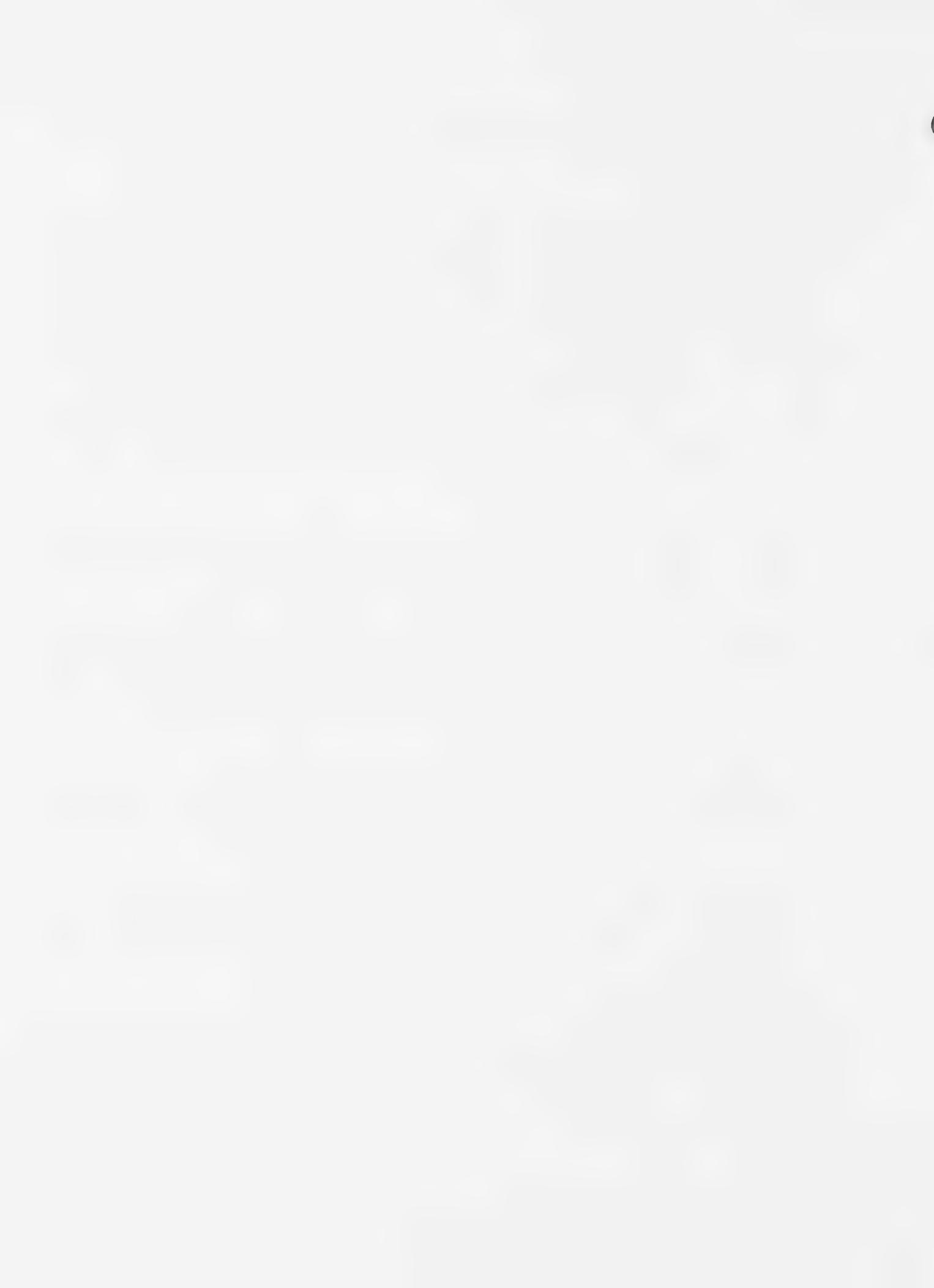
IFR - Instrument Flight Rules.

IFR Flight - A flight conducted in accordance with the instrument flight rules. (under IFR, flight is conducted with reference to electronic navigation aids and cockpit instrument displays).

IFR Conditions - Weather conditions which prevail generally when the visibility or ceiling falls below the prescribed limits for Visual Flight Rules. Aircraft must be operated according to Instrument Flight Rules under these conditions.

Industrial Shippers/Receivers

These are the companies who ship goods by air and the companies who order their incoming goods to be delivered to them by air. They use air shipment because of the time - sensitive nature of their goods. Although they are the primary customers of the air cargo system, their actual arrangements for shipping may be made by a freight forwarder.



International Air Charters

Transportation operations performed by aircraft having a maximum authorized take-off weight of more than 35,000 pounds or 15870 kg, the entire capacity of which has been engaged by one or a limited number of charterers for flights between Canada and any other country.

Itinerant Aircraft Movements

At airports with air-traffic-control towers or flight service stations, "itinerant aircraft movements" are:

- (i) movements by aircraft proceeding to or arriving from another location; or
- (ii) movements by aircraft that leave the air-traffic-control circuit, but return without landing at another airport.

Inspection Services - The following Canadian Government

Inspection Services are located and/or represented at the air terminal for the purpose of examining passengers and their effects, arriving on International or Transborder flights:

- The Department of National Health & Welfare (Health);
- The Department of National Revenue (Customs);
- The Department of Manpower & Immigration (Immigration);
- The Department of Agriculture (Agriculture).

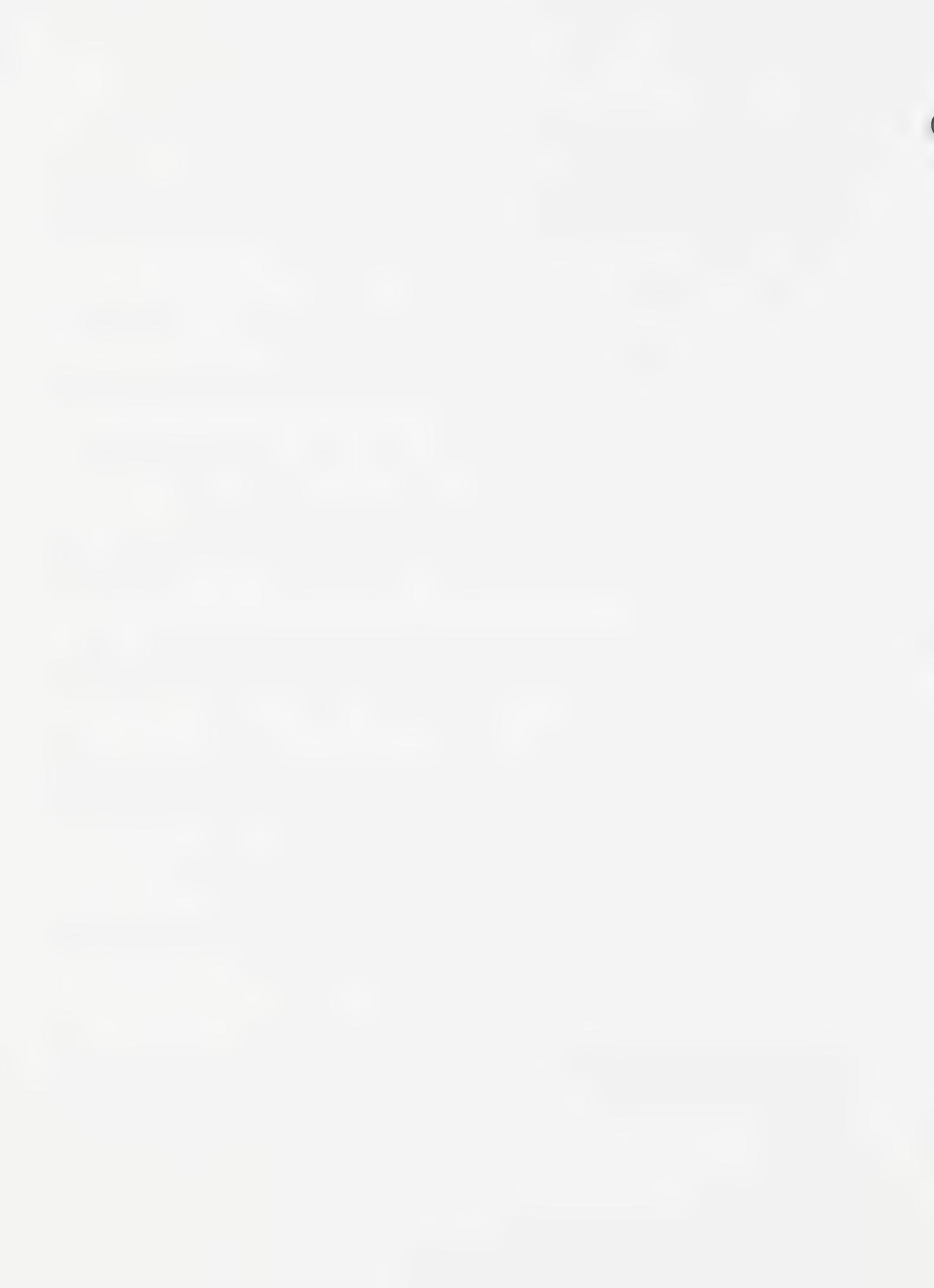
Instrument Landing System (ILS) - A means whereby the pilot guides his approach to a runway solely by reference to instruments in the cockpit. In some instances the signals received from the ground can be fed into the automatic pilot for automatically controlled approaches.

International Flight - Flight departing to or arriving from a point outside the continental limits of North America.

Local Flight - Aircraft which remains under tower control for the purpose of practicing landings and take-offs or to conduct other local air work.

Mainline Unit Toll (Mut)

The designation applying to Unit Toll (scheduled) operations by Air Canada, Canadian Air Lines International Ltd. and Wardair under the authority of a Class 1 or 2 licence. This term also applies to similar services by foreign air carriers to/from Canada.



Microwave Landing System (MLS) - an instrument landing system using microwave radio signals to guide the aircraft's approach instead of the VHF system formerly used. The microwave system provides fewer ground reflections, takes up less space, and uses smaller aerials.

Other International Traffic

Refers to air services between Canada and any country other than the United States (including Alaska, Hawaii and Puerto Rico). These are services provided under the authority of a Class 8 licence.

Other Unit Toll (Out)

The designation applying to all Unit Toll operations other than those carried out by the mainline carriers (see "Mainline Unit Toll") or subcontractors of the mainline carriers.

Revenue Cargo

All air freight, air express, and excess baggage for which any tariff is charged, exclusive of mail and provisions and of passenger baggage for which no charge is made.

Scheduled Services - Public transportation of persons, mails or goods by an airline serving designated points in accordance with a service schedule at a toll per unit and performed under a class 1 or 8 licence from the Air Transport Committee; also foreign airlines performing similar services to Canada.

Transborder Traffic

Air services between Canada and the United States (including Alaska, Hawaii and Puerto Rico). These are services provided under the authority of a Class 8 licence.

Unit Toll

The designation applying to commercial air service for the public transportation of persons, mail or goods on a toll-per-unit basis (i.e., per passenger, per package or per pound of goods).

Useful Load - In airplanes, the difference, in pounds, between the empty weight and the maximum authorized gross weight.

VFR Conditions - Good weather conditions under which an aircraft can be operated by visual reference to the ground and to other aircraft.

VFR Flight - A flight conducted in accordance with the visual flight rules. (See and be seen).

Visual Flight Rules (VFR) - The rules set forth in Division 111 of Part V of the Air Regulations and in the orders and directions made by the Minister thereunder.

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